

Everyman's Encyclopædia

IN TWELVE VOLUMES

VOLUME FOUR

Coal-fish
TO
Drama

THE THIRD EDITION

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COAL-FISH — DRAMA

EDITED BY ATHELSTAN RIDGWAY, LL.B.



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RETROCONVERTED
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REFERENCE

LONDON: J. M. DENT & SONS LTD.
TORONTO: J. M. DENT & SONS (CANADA) LTD.

J. M. DENT & SONS LTD.
Aldine House · Bedford St. · London
or

J. M. DENT & SONS (CANADA) LTD.
224 Bloor St. West · Toronto 5

Made in Great Britain by
The Temple Press · Letchworth · Herts
and Spottiswoode, Ballantyne & Co. Ltd.
London, and Colchester · Essex

ABBREVIATIONS

The titles of subjects, which are printed first in bold type, have been abbreviated within each article to the initial letter or letters.

ac., acre(s).
agric., agricultural.
ambas., ambassador(s).
Amer., American.
ant., ancient.
ann., annual.
arron., arrondissement.
A.-S., Anglo-Saxon.
A.V., Authorised Version.
b., born.
Biog. Dic., Biographical Dictionary.
bor., borough.
bp., birthplace.
Brit., British.
C., Comrade.
c., about.
cap., capital.
cf., compare.
co., county.
com., commune.
cub. ft., cubic feet.
d., died.
Dan., Danish.
dept., department.
dist., district.
div., division.
E., east; eastern.
eccles., ecclesiastical.
ed., edition; edited.
e.g., for example.
Ency. Brit., Encyclopædia Britannica.
Eng., English.
estab., established; establishment.
F., Fahrenheit.
fl., flourished.
fort. tn., fortified town.
Fr., French.
ft., feet.
Ger., German.
Gk., Greek.
gov., government.
Heb., Hebrew.
hist., history.
horticult., horticultural.
h.p., horse-power.
hr., hour.
i.e., that is.
in., inch(es).
inhab., inhabitant(s).

is., island(s).
It., Italian.
Jap., Japanese.
jour., journal.
Lat., Latin.
lat., latitude.
lb., pound(s).
l. b., left bank.
long., longitude.
m., mile(s).
manuf., manufacture.
min., minute(s).
mrkt. tn., market town.
MS., manuscript.
mt., mount; mountain.
N., north; northern.
N.T., New Testament.
O.E., Old English.
O.F., Old French.
O.T., Old Testament.
oz., ounce(s).
par., parish.
parl., parliamentary.
pop., population.
prin., principal.
prof., professor.
prov., province; provincial.
pub., published; publication.
q.v., which see.
R., riv., river.
r. b., right bank.
Rom., Roman.
R.V., Revised Version.
S., south; southern.
sec., second(s).
sev., several.
Sp., Spanish.
sp. gr., specific gravity.
sq. m., square mile(s).
temp., temperature.
ter., territory.
tn., town.
trans., translated; translation.
trib., tributary.
univ., university.
urb., urban.
vil., village.
vol., volume.
W., west; western.
Wm., William.
yd., yard.

The article ABBREVIATIONS contains a list of those in general use. See also ABBREVIATION (music) and ELEMENTS (chemical symbols).

Coal-Fish, see GREENCOD.

Coal Gas, see GAS MANUFACTURE.

Coal, Hydrogenation of, conversion of coal into a mixture of oils by treatment with hydrogen. The best method of hydrogenation is that of Bergius, which consists, essentially, of converting coke into a mixture of hydrogen and carbon monoxide by heating in steam and purifying the mixed gases from sulphur. The next stage is to oxidise the carbon monoxide to carbon dioxide, which is effected with further steam heating and a catalyst. The carbon dioxide is then removed by water under a pressure of 750 lb. to the square inch and the hydrogen is freed from any remaining traces of carbon monoxide by treatment with a solution of copper compound and ammonia. The coal, having been cleansed by flotation, is then mixed with creosote oil and a catalyst and ground to a fluid paste, which latter is heated, with the hydrogen, at a pressure of 250 times that of the atmosphere. It is thus converted into a mixture of oils which, on fractional distillation, can be separated into petrol and heavy and middle oil. Some four tons of coal are required to yield one of petrol, and ensuing petrol is of good quality and volatile.

Coaling Stations. Since Great Britain has world-wide commercial interests, it is a necessity that ports should be specially fitted out for supplying steamships with coal. At the same time these stations are an essential to the R.N., and as a consequence have to be in some measure fortified for defence. The armament of these stations is in the main light, although a great amount of money has necessarily been spent on them. Some defence, however, is necessary against attack from the air. The majority of the C. S. of the world are now oil-fuelling stations as well, but oil supplies are more vulnerable than coal, especially from the air. Among the prin. stations may be named Aden, Bombay, Brisbane, Calcutta, Cape Town, Christchurch (New Zealand), Colombo, Durban, Falkland Is., Fiji Is., Gibraltar, Halifax, Hong Kong, Jamaica, Karachi, Labuan, Malta, Mauritius, Rangoon, Sierra Leone, Singapore, Sydney, and Zanzibar. The great coal-shipping firms of Great Britain have depots for the storing and supply of coal all over the world.

Coalition, combination of states or political parties having different or opposed interests, effected for the purpose of attaining a specific end or carrying out or resisting a particular policy. Some international Cs. were the first C. against France in 1793, formed by England, Spain, Holland, Austria, and Prussia; the second C. against France in 1798 after the battle of the Nile, and the third C., of which the chief members were England, Austria,

and Russia, formed in 1805, largely through the exertions of Pitt. Perhaps the most celebrated C. of political parties in past Eng. hist. was the C. ministry of 1783, with the duke of Portland as nominal Prime Minister, the two antagonists Fox and North being the secretaries of state, following on the C. of Fox and Burke in 1782 to turn Shelburne out of office, both Cs. arising out of the bitterness and personal recriminations engendered by the loss of the Amer. colonies. In 1804 Pitt, Fox, and Grenville united to oppose the Addington ministry, but on Pitt becoming Prime Minister the C. broke up because the king refused to receive Fox. The object of this last C., which sank the differences of its members over the question of Catholic emancipation, was to secure a stronger ministry in view of the general menace to Europe from France under Bonaparte. Most Cs. between parties either break up at once or become permanent through the absorption of one party by the other. The latter happened in the case of the Liberal and Conservative C. against Gladstone's Home Rule Bill of 1893. Where a particular reform or projected measure is, or is thought to be, of very far-reaching importance, it may often happen that what were previously matters of controversy sink into insignificance in one all-absorbing fear or dislike of the one great change. Perhaps in England a more significant C. was never experienced before the First World War than that of the Liberal, Nationalist, and Labour parties after the general election of 1910, the dominant motive of which was the determination to give Home Rule to Ireland. The necessity, on the outbreak of the First World War, of sinking party politics in the larger issues led in Great Britain to the formation of a C. Gov., representative of all shades of political opinion—a political *modus vivendi* which was not adopted on the outbreak of the Second World War, mainly because a National Gov. was in office. The War Cabinet which was formed very soon afterwards, at once exercised a greater and more arbitrary authority than had long been customary under the Brit. constitution. Under the Defence of the Realm Act (q.v.) powers, almost amounting to a dictatorship, were vested in the Prime Minister and the chief officials of state. In order to produce harmonious relations essentially Liberal projects were dropped, and even Bills which had become Acts of Parliament under the Liberal Gov. had their date of operation postponed. The C. subsisted throughout the war, and once again assumed office after the general election of 1918, but finally yielded to the party system in 1922, the immediate cause of

Coal

the downfall being the gov.'s policy on the Chanak affair. (See under GRÆCO-TURKISH WAR (1921-22); HARINGTON, SIR CHARLES; TURKEY.) The 'National' Gov. of 1931 was also essentially a C. Gov. of the Conservative party, together with such of the representatives of the Liberal and Labour parties as were opposed to the previous Socialist regime. Its formation, however, soon estranged the bulk of the Labour and orthodox Liberal parties.

Coal, Low Temperature Carbonisation of, see CARBONISATION.

Coal Measures, see COAL-FIELDS; CARBONIFEROUS SYSTEM; PALEONTOLOGY; PETROLOGY; GEOLOGY.

Coal Mines, Nationalisation of. By the Coal Act, 1938, a Coal Commission was constituted, in which was vested, as from July 1, 1942, the ownership of all coal (and certain associated minerals and rights), with the duty of exercising their functions as owners 'in such manner as they might think best for promoting the interests, efficiency, and better organisation of the coal-mining industry.' The aggregate amount of compensation to be paid by the commission for coal and coal rights was fixed by the Act at £66,450,000, with additional sums for other associated property and rights, and the commission might borrow up to £76,450,000 for the payment of compensation and other expenses payable by them. The valuation of separate coal holdings, as registered under the Coal (Registration of Ownership) Act, 1937, was carried out by valuation boards appointed by the Ministry of Fuel and Power, and payment of the compensation completed. The commission was also charged with duties of promoting amalgamation of colliery undertakings in any area in which they considered the number of separate undertakings to be so great as to be detrimental to the efficient working, treating, or disposing of coal. After the Second World War, the Coal Commission was replaced by the National Coal Board, constituted under the Coal Industry Nationalisation Act, 1946, and a tribunal was set up to determine the global sum of compensation to be paid for certain assets of the coal industry to be transferred to the Coal Board. The tribunal fixed the amount of compensation at £164,660,000. The assets transferred may be described broadly as the assets of the coal industry, excluding assets such as coke ovens and by-product plant. The award is dated Aug. 1, 1946. In pursuance of an order made under the Coal Mines Nationalisation Act the transfer of the C. M. to national ownership was effected on Jan. 1, 1947.

Coal-mining. Exploration or Prospecting.—In prospecting for coal a knowledge of geology is essential in order to determine whether the rocks are coal-bearing or belong to the Carboniferous system. In countries where C. operations are in progress, valuable information may be obtained from neighbouring collieries, pub. papers, and records such as the Brit. Geological Survey memoirs and maps. In most cases, the coal outcrops have been

Coal-mining

worked away, but their former existence may be marked by blackened earth or old rubbish heaps at the surface. The bed of a stream may contain coal fragments derived from some outcrop of a seam. By searching upstream this outcrop may be located. Where the nature of the rocks indicate, with a reasonable degree of certainty, that coal exists in the area, the expense of boring to prove it may be justified. Before doing so, however, a geological survey is often necessary. Boring is resorted to for the purpose of demonstrating that the great expenditure necessary for shaft sinking is warranted. Two, three, or more boreholes are often put down at points selected from the geological survey. These boreholes will provide information regarding (a) the number, thickness, and quality of the seams, (b) the nature of the rocks through which the shafts will have to be sunk, (c) the depth from the surface of the individual seams, (d) the amount and direction of dip, (e) the presence of water, and (f) the existence and position of faults, which information will help to determine the best location for the shafts. With the aid of the above information, it is possible to estimate the expense of sinking the shafts; the total quantity of coal available; the cost of working and the probable profit. There are a number of boring methods, but all of them may be classified under either one or the other of two main systems: (1) *Percussive* system, carried out with the aid of free-falling tools, or (2) *Rotary* system, which involves the cutting out of a solid core of the strata passed through. Generally, the second method is preferred, as the rock cores enable a complete record of the strata passed through to be obtained.

Sinking and filling Shafts.—If the information provided by the boreholes is favourable, shafts are sunk to work the coal seams. The first step is to select the best position for sinking. This depends upon (a) the proximity of a main railway so as to limit the expenditure on branch railways; (b) the existence of a good road for transport; (c) the limitation of underground roadways; (d) the presence of faults which may damage the shaft; and (e) the presence of a supply of clean water for steam boilers, etc. In mountainous areas, valleys are naturally preferred for shafts as they ensure the minimum depth to reach the coal. With dipping seams, the shafts are often sunk to the deeper part so that the bulk of the coal and water will gravitate to the shaft bottom and thus save power. Normally, the shafts are sunk near the centre of the taking so as to limit the length of haulage and ventilation roads in all directions. The law requires that at least two shafts, fifteen yards or more apart, be sunk to work each independent coal taking. One will act as the *downcast* or ingress and the other as the *upcast* or egress. Both shafts must be provided with winding gear for the conveyance of workmen. The shaft must be adequate of size, and the factors which determine this are (a) the required daily output of coal; (b) the total quantity

of coal in the taking; (c) the period of the lease (in England it varies from thirty to ninety-nine years and in Scotland from twenty to thirty years); and (d) an additional space must be allowed for water and compressed-air pipes and ventilation. The above information will determine the size of the tubs or trams for carrying the coal, the size of the cages in the shaft, and finally the size of the shaft itself. Engineers are nowadays generous in shaft sizes to allow ample space for ventilation. In Great Britain, shafts up to 24 and 25 ft. in diameter are not uncommon. A depth of 4000 to 5000 ft. is considered to be about the maximum at which coal can be profitably mined in Great Britain, although in the gold mines of S. Africa shafts up to nearly 7000 ft. have been sunk. There is a great variety of shaft forms, such as the rectangular, octagonal, elliptical, and circular. The rectangular is easy to secure with timber and divide into compartments. The circular shape is the strongest to resist rock pressure and can be lined easily with brick, concrete, or cast-iron tubing. The circular is the form usually adopted in England and Wales, the size varying up to 25 ft. in diameter. When sinking through the incoherent surface deposits, special precautions are necessary. Sometimes beds of water-logged gravel or quicksand will render the sinking difficult and necessitate special methods. Having reached the hard rock, the sinking operations include blasting and excavating, removal of debris in special buckets, raising the water, and finally lining or supporting the shaft sides. The sinking costs will fluctuate greatly according to time and place. In the case of a fairly large shaft £100 or more per yard of depth is not uncommon. (For fuller information on this subject see *SINKING*.) When the coal is reached, the mining engineer provides for the protection of the shaft and surface buildings from damage, due to ground subsidence, by leaving a large pillar of coal around the shaft bottom. This is left intact except for the necessary haulage and ventilation roads. The size of this coal pillar varies with the depth of the shafts, the thickness of the seam worked, the dip of the strata, and other factors.

Methods of Working.—When the shafts have reached the coal and the shaft pillar formed, the method of working the seam must be decided. The various methods may be classified broadly into two systems, namely *longwall* and *pillar and stall*. In the longwall method, the coal face is opened out at the edge of the shaft pillar and the whole of the seam removed in one operation. The space from which the coal has been removed is completely or partly filled with dirt obtained from the seam or the rock beds above or below the seam. This area filled with dirt is known as the *goaf* or *gob*, and through this all roads to gain access to the coal face are maintained. In the pillar and stall method, the seam is divided into rectangular pillars by driving stalls or boards at right angles to each other.

After a certain area of coal has been split up into pillars, the work of extracting them is commenced. The seam is therefore removed in two operations, as distinguished from the longwall method, in which the coal is worked in one operation. There are numerous modifications of these two main systems to meet the varying conditions, such as thickness and inclination of seam, and so on. As a general rule, seams of 4 ft. or under in thickness are worked longwall, and seams over this thickness by some form of pillar and stall. The system of working to be adopted will depend upon (a) the thickness and inclination of the seam; (b) the depth below the surface; (c) the nature of roof and floor; (d) the presence of gas or water; (e) the presence of old workings; (f) the existence of valuable surface buildings requiring protection. In *longwall advancing*, the coal is worked from the shaft pillar towards the boundary, while in *longwall retreating* the main roads are driven to the boundary and the seam is worked backwards towards the shaft.

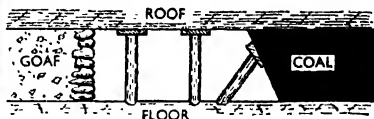


FIG. 1 TIMBERING IN COAL FACE

The bearing of the main roads driven from the shaft bottom varies with the haulage requirements, the inclination of the seam, and the position of the shaft relative to the coal taking. The advantages of the longwall system of working are (a) it is very suitable for machine cutting and conveying; (b) concentration of men; (c) the ventilation is better; (d) better roof control and therefore greater safety. Fig. 1 shows a section across a longwall coal face, with the goaf packed with dirt, props for supporting the roof, and a sprag to hold the face slip until the miner is ready to work it. The pillar and stall method is usually adopted in thick seams or when working under valuable property or water, in which case the pillars are left to support the strata. This system of working is expensive owing to the large number of narrow drivages, and the removal of the pillars is delayed until the whole block is split up.

Timbering.—The roof and sides of mine roadways and coal faces must be supported and made secure to prevent accidents and to maintain traffic and ventilation. At the coal face a bad roof must be supported immediately the coal is removed, and even a good roof must be made secure to keep it good. Ordinary timbering will only resist the minor pressure caused by the weight of the rock immediately above the coal. The major rock pressure is irresistible and can only be controlled by systematic packing of the goaf. Timber supports often give

warning, by a crackling sound, of roof weights. Since about 50 per cent of the fatal accidents in mines are due to falls, timber supports are a necessity. In Northumberland and Durham, a special body of trained men are employed in each pit to do this work, while in Wales, Lancashire, and Scotland, the colliers do most of the timbering required in their places. At the coal face single props are

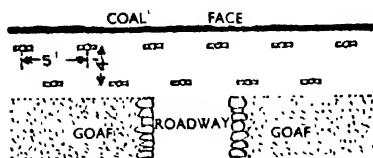


FIG. 2. PLAN OF SYSTEMATIC TIMBERING

set with a lid on top. This lid distributes the pressure over a greater area. With hard floors, the feet of the props are often tapered to prevent their crushing when the roof weight comes on. With soft floors, a sole piece is often placed under the prop as well as above it. Another method used in the coal face and on the sides of roadways is that of chocks consisting of pieces of wood placed horizontally in the form of squares, which are built up to the roof and wedged tightly. A method which is gradually being adopted in most coal-fields is that known as systematic timbering. Fig. 2 shows the method being applied in a

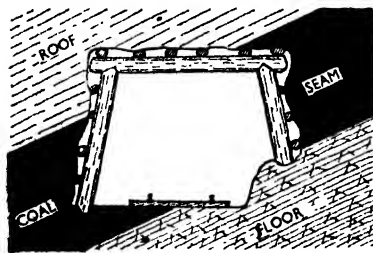


FIG. 3. TIMBERING IN INCLINED SEAM

longwall face. Of course, with good roofs, the distance apart of the props can be greater than when the roof is bad. Roadways are usually supported by means of a cross-bar and props, although when only the roof requires securing, a cross-bar alone may be sufficient. Fig. 3 shows double timbering in an inclined and moderately thick seam where part of the hard floor is removed for headroom. The joint between the cross-bar and the uprights is known as the Welsh notch. In the case of wide roadways, the cross-bars are sometimes supported by a centre

prop. Nowadays, main roadways that require supporting are lined with brick or reinforced concrete arches, or by brick side walls with steel girders as cross-bars. Semicircular steel arches are now a frequent method of supporting roadways. These are placed 2 to 4 ft. apart with tie-rods to secure them one to the other. This method of support has many advantages, such as great strength; it is less cumbersome than wood and it is fireproof and not so liable to decay. Even at the coal face, steel is gradually replacing wood as supports. Steel props may be in the form of cylinders or girders, and many are made adjustable to fit the height of the seam or to yield or gradually with increasing roof pressures. The chief methods of preserving mine timber are thorough drying before use, stripping the bark, and the use of preservatives such as zinc chloride, copper sulphate, iron sulphate, lime, and creosote (from tar). The timber in return airways is usually sprayed with



Fox Photos

MINERS BREAKING COAL FOR REMOVAL IN TUBS

a solution of copper sulphate at regular intervals. In America, shaft timber is often sprayed with cement, which renders it fireproof and fungus-proof.

Winning the Coal.—The most laborious work of the miner is that of cutting down the coal and then filling it into tubs. Most seams have joints or cleavage planes, and there is always one direction along which the coal will yield most readily. The cleats in the coal are known as back or face slips, depending on the direction from which they are worked. For example, the seam shown in Fig. 1 is being worked on the face. If it was worked from the opposite direction, the working would be on the back. When the slips are as shown in Fig. 1 the miner works away the lower part or butt, when the coal can be readily parted slip by slip. The miner's tools consist of picks, shovels, hammers, wedges, and hatchets. Among the other tools occasionally used are drilling machines, worked either by hand, electricity, or compressed air. These machines are used for boring in the seam, roof, or floor to blast it loose. When the seam has been undercut, sprags may be necessary to hold the coal until the loading commences. A sprag is an

inclined prop against the coal as shown in Fig. 1. If the coal is hard, it may be necessary to use mechanical wedges or even shot-firing to bring it down. When shot-firing is resorted to in gassy or fiery mines, only permitted explosives may be employed. These explosives minimise the danger of flame communication in the presence of inflammable gas such as fire-damp. Shot-firing in gassy mines can only be performed by a competent man, called a shot-firer, duly appointed by the management.

Coal Face Machinery.—During the last ten to fifteen years, economic necessity has compelled colliery managers to introduce machinery to perform the more arduous work at the coal face. Coal face machinery has become necessary because of (a) the rising cost of production; (b) the shorter working hours; (c) the exhaustion of thick seams and the necessity for working thin seams; (d) the shortage of skilled miners, and (e) the necessity for

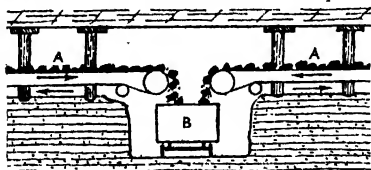


FIG. 4. FACE CONVEYORS

increasing the output per man and reduction of working costs. The longwall method of working lends itself well to the use of face machinery such as coal-cutters and face conveyors. A coal-cutting machine consists essentially of an engine or motor which by means of a gear case works either a disk, chain, or a bar type of cutter. A longwall coal-cutter is fixed at one end of the coal face and by means of a rope or chain is hauled along the face whilst cutting a groove or channel to a depth of 3 to 6 ft. as it travels along. The disk machine acts in principle like a circular saw, except that it is laid horizontally instead of vertically. In the chain machine the cutters are fixed to an endless chain resembling that of a band saw. The bar machine carries teeth along its length and in action resembles a saw-file. These machines are worked either electrically or by compressed air. With coal-cutting machines in use, the quantity of coal to be loaded is far greater than when the coal is cut by hand. In view of this, coal-face conveyors have become a necessity to remove and deliver the coal to the tubs. Different types of conveyors are in use, the most popular being the belt, jigger (or shaker), and the scraper chain. The conveyor extends the whole length of the coal face and delivers the coal either into the tubs at the roadway or on to a gate or main conveyor. There are machines now in operation which

simultaneously cut and load the coal on longwall faces, which may be 100 yds. in length, and give an output of 250–300 tons of coal per shift. Fig. 4 is a section along a coal face showing two face belt conveyors (A) delivering coal on to a tub (B). In some cases these face conveyors deliver the coal on to a gate conveyor, which in turn discharges into tubs some distance back on the gate road. At the Comrie pit of Fife—the first to lead the way—every ton of coal is mechanically cut and conveyed, and lifted to the surface by the modern skip winding method. The National Coal Board is planning to extend this method to as many mines as possible and in 1947 placed orders for £9,000,000 worth of new machines—cutters, loaders, and conveyors. Production apart, the Board has also prepared schemes for mechanical cleaning of coal in centralised washing plants, and for the reorganisation of underground haulage.

Haulage of Coal Underground.—There is a great variety of haulage systems in use underground. The system to be adopted depends upon (a) the amount and direction of gradient; (b) the regularity or otherwise of gradient; (c) the daily and total tonnage of coal to be hauled; and (d) the power available. In small mines, men or boys may be employed to push the trams to and from a siding or double-parting. When a set of full trams has been collected it is hauled outwards by a haulier with a horse or by a rope and mechanical haulage. Where horses or ponies are used, the gradient should not exceed about one in a hundred and the roadway must be large enough to prevent injuries to the animals. Mine trams (or tubs) are usually built of steel or steel alloyed with copper to prevent corrosion. Locomotives, which are popular in America, may be driven by petrol, electricity, compressed air, or storage battery. Safety from fire or explosion is obtained by using compressed air or storage battery locomotives. In Brit. mines, electricity and compressed-air power are favoured for haulage purposes. Electricity is largely confined to the main haulage planes where the ventilation is good, and compressed air is preferred for the inbye haulages where ventilation difficulties might render electricity dangerous. Where the full tubs have to be brought downhill on an inclined plane a self-acting incline can be used. In this case, the gravity pull of the full tubs is utilised to haul up the empty tubs. This is varied sometimes and the full tubs haul a bogie (a low carriage containing iron weights) up the incline, and the weight this bogie, when descending, hauls up the empty tubs. The arrangement calls for a drum (with brakes) on top of the incline around which a rope or chain is coiled to haul the coal tubs. All self-acting inclines are provided with safety appliances to prevent accidents from runaway tubs. With a direct-acting haulage or dip-haulage, only one rope is used. This system is adopted on inclined planes where the full trams have to be hauled uphill and the gradient

is sufficient to allow the empties to run down the plane on their return journey. A haulage engine and drum are fixed on top; the drum can be thrown out of gear when the empties run back under their own weight. When the gradient is undulating or is insufficient to allow the empty tubs to return by gravity, the main- and tail haulage system is employed. In this case two ropes are used. One of these known as the tail rope, hauls the empty tubs inbye, and the other, called the main rope, hauls the full tubs outbye or towards the shaft bottom. The endless-rope system of haulage is greatly favoured on long, fairly flat roadways. As the name implies, one endless rope is used in which travels continuously in one direction. The ends of two ropes are spliced or joined so as to form one endless rope. This travels from the haulage engine drums to a return wheel or pulley placed at the other end of the haulage plane. Usually two roads are laid, side by side, and the full tubs pass outwards on one road and the empties pass inwards on the other. This arrangement requires a wide haulage road and consequently, in weak strata, two separate and parallel roadways are sometimes preferred, one for the full tubs and the other for the empties. The trams are attached to the rope in various ways, and can be attached or detached by hand or by other means. In modern mines, men or boys are never employed to push coal tubs, in fact even horses and ponies are being replaced gradually by power haulages or locomotives. There are a number of mines with no horses underground, and the number is increasing.

Coal Winding.—The coal tubs, on reaching the shaft bottom, are run into cages. Two cages are provided in each shaft, one ascending while the other descends. The cages are guided in the shaft by wood, rail, or wire-rope guides to avoid collision and to give steadiness at high speeds. Rope guides are often used and these are suspended from cross girders in the head-gear and held taut by weights in the shaft bottom. Each cage may have from one to four decks, each deck holding one or more tubs. Totally enclosed double-decked cages of wrought iron or steel and holding two tubs on each deck are common. The cages are attached to the winding rope by chains. Winding ropes are now almost exclusively made of plough steel owing to its great tensile strength, elasticity, and wearing qualities. A plough steel rope has a breaking stress of 95–125 tons per sq. in. Winding engines are driven either by steam or electricity, the latter being preferred for smooth working. The load on the winding engine varies considerably during a complete wind, being a maximum at the start. Various methods are used to counterbalance the weight of the winding rope. The tail-rope method is frequently employed. This consists in fixing a rope to the bottom of each cage and running it around a pulley at the bottom of the shaft. If this tail rope equals the weight of the winding rope, the dead load on the winding engine is

only that of the coal, as the cages will balance each other. Conical or spiral drums (instead of cylindrical drums) are sometimes used for the same purpose. Nowadays, coal winding is sometimes performed by the skip or bucket method which, in conjunction with face and gate-road conveyors, is a further step towards the elimination of tubs underground.

Mine Gases.—The chief noxious gases with which miners are concerned are firedamp, carbon dioxide, and carbon monoxide. Firedamp, methane or carburetted hydrogen, is the most common mine gas. It is colourless, odourless, tasteless, and a non-poisonous gas, although it will cause suffocation when breathed, owing to the absence of air. Since it is only about half as heavy as air, it is generally found near the roof or in cavities. When mixed with air in certain proportions it is very explosive. Its presence in mine air is detected by its effect on the flame of a miner's safety lamp, on which a bluish cap is formed when sufficient gas is present. Firedamp is given off from the coal and the surrounding rocks, sometimes suddenly as 'blowers.' Carbon dioxide also exists in varying small quantities in coal and is produced by the combustion of carbonaceous material, the burning of lamps, and the breathing of men and horses. It is a colourless and odourless gas and, being about one and a half times as heavy as air, it accumulates near the floor and in dip workings. This gas will not burn, neither will it support combustion. It is detected by the dimness of the flame of a safety lamp, and the flame is extinguished when large quantities are present. When breathed it causes fatigue, panting, and headache according to the amount present. Carbon monoxide is principally produced as a result of gob fires and by the explosion of firedamp and coal dust. It is a colourless and odourless gas, slightly lighter than air. This gas is a very deadly poison and the breathing of even minute traces will cause poisonous effects. The symptoms of carbon monoxide poisoning are breathlessness and palpitation, severe headaches, drowsiness, or collapse according to the amount present.

Ventilation.—The prin. function of ventilation is to convey fresh air to all parts of the mine and to carry away gases and waste products, and thus provide a safe and wholesome atmosphere in all parts where men work or travel. In certain small mines, the ventilation is natural, owing to a difference in temp. of the air in the downcast and the upcast. Natural ventilation is, however, unreliable, and is always liable to cease or even change its direction according to the season of the year. The Coal Mines Act, 1911, of Great Britain states that a place is not fit to work in if the air contains either less than 19 per cent of oxygen or more than 1½ per cent of carbon dioxide. Formerly, many mines were ventilated by steam jets, waterfalls, or furnaces. A jet of steam was allowed to issue near the bottom of the upcast shaft which heated the air and caused it to flow

upwards to the surface. A waterfall was used in the downcast to induce a downward air current. Furnaces were used at the bottom of the upcast to heat the air and cause it to ascend the shaft. Furnaces are now prohibited in large mines newly opened on account of the explosion risks, and the other methods enumerated above are rapidly going out

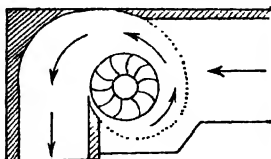


FIG. 5. VENTILATING FAN

of use except in emergencies. Fans are almost exclusively used nowadays. In this case the air current is produced by blades or vanes attached to a revolving shaft. The air in the fan is whirled round and round and flies off at the tips, like a stone from a sling. More air enters from the mine shaft to occupy the space in



FIG. 6. AIR CROSSING

the fan, and this process goes on continually. These centrifuge ventilators or fans are of two types, exhausting or forcing fans. The former exhausts the air from the top of the upcast shaft, while the latter forces the air down the downcast shaft. Most fans nowadays are of the exhausting type as shown in Fig. 5. The air current which is created by a fan

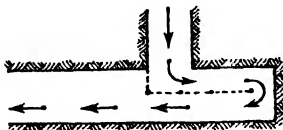


FIG. 7. USE OF BRATTICE

or other means, must be guided or circulated throughout the mine. This is accomplished by ventilation doors, air-crossings, brattices, etc. When the air current has to be deflected or turned at branch roads a door is used, which can close automatically. When an intake airway crosses a return airway, an air-crossing, as shown in Fig. 6, is constructed to prevent the two currents mixing. Brattice sheets are sometimes necessary

in narrow places to direct the air to the working face as shown in plan in Fig. 7. Coursing the air-current by means of doors, stoppings, and brattices is a very important branch of mine ventilation.

Pumping.—The following systems of dealing with pit water are employed according to circumstances: (a) raising water in chests or tanks from dip workings; (b) winding water in barrels in shafts; (c) removing water by means of siphons; and (d) removing water by means of pumps driven by steam, compressed air, or electricity. When the quantity of water to be dealt with is small, tanks or barrels are used to remove it to the surface. With greater quantities it is usual to employ pumps of various types. Formerly, it was a common practice to fix the pumping engine at the surface with rods leading down the shaft and pumping the water from a sump, i.e. the place where the water was allowed to accumulate. Another method has the engine and pump at the pit-bottom, the steam being carried down the shaft to drive it. Of late years great strides have been made in the use of three-throw, centrifugal, and turbine pumps driven by electricity. Several of these pumping units may be installed between the workings and the surface, one pump delivering its water to the next pump and so on until the surface is reached.

Lighting of Mines.—The various methods of mine lighting are (a) candles; (b) torches; (c) open lamps; (d) oil safety lamps; and (e) electric lamps. The danger of using candles and open lamps in mines is that the pressure of fire-damp in the right percentage would cause an explosion. An oil safety lamp is one which has its flame protected in such a way that it should not ignite fire-damp if present in the air. Several types of oil safety lamps are in use, being modifications of the original Davy, Stephenson, and Clanny lamps (see DAVY LAMP). Electric safety lamps are now made of satisfactory design, either to be carried by hand or worn in the hat. They possess many advantages over the oil lamps, such as better illumination, and are now very popular in Great Britain, U.S.A., and Canada.

Sorting and Cleaning.—When the coal reaches the surface, the tubs are run on to a weighing machine and the weight is registered. They are then run on to a revolving 'tippler,' where the coal is discharged on to either a fixed bar or a jiggling screen which separates the small from the large coal. The large coal passes on travelling belts to picking belts or tables where pieces of shale are removed by boys or older men. From there it is either subjected to further screening and sizing by machines or loaded direct into railway wagons underneath. The removal of dirt on the picking belts is only a preliminary cleaning, as small coal and some varieties of large coal are so full of impurities that they can only be efficiently cleaned by washing in water or other liquid. There is a large variety of coal washers but the

principle in all cases is more or less the same. If raw coal be placed in an upward current of water of a certain velocity, the coal particles will be carried upwards by the stream, but the impurities such as shale, being heavier, will descend through the upcoming water. This principle of so arranging a current of water that the coal particles are separated from the shale is used in all coal-washing plants.



Fox Photos

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Haulage Methods for Mining Engineers, 1946; T. Bryson and A. Harvey, *Science for Miners*, 1946.

Coal Supplies. On the initiative of the XII. International Geological Congress, which met in Toronto in 1913, an inquiry was made into the C. S. of the world. Actual world resources were estimated in metric tons at 716,154,000,000, while the possible and probable reserves totalled 6,681,399,000,000. Table 1 gives the distribution of these resources according to continents.

A list of the chief coal-producing countries and their production is given in Table 2. Tables 3A and 3B give world deposits, output, and consumption of both coal and lignite for 1936. World output in 1938 decreased by 100,000,000 tons in comparison with 1937, and was approximately 1,190,000,000 tons, more than nine-tenths of the decrease being in the U.S.A.

United Kingdom.—It will be seen from Table 4 (which shows the output of coal in Great Britain in 1934-38 and the amounts exported) that a vast amount of Brit. coal is exported all over the world; it can further be noticed from our knowledge of the coal-fields (q.v.) that whereas the U.S.A. coal-fields are eighty-three times larger than the Brit. fields, yet there is but little more than twice as much coal produced yearly in America as in the United Kingdom. In view of the enormous output of the United Kingdom fields and their comparatively small size, fears have been aroused for, and much thought has been given to, the possible exhaustion of our C. S. Two royal commissions have thoroughly studied the subject, one being under the chairmanship of the duke of Argyll, and the other under Lord Allerton. The first of these commissions pub. its report in 1871, and the conclusion reached was that the attainable amount of coal in the known coal-fields was 90,207,000,000 tons, and the probable amount available in other places was 56,273,000,000 tons, thus making a total coal supply of 146,480,000,000 tons. The second commission on C. S. reported in 1905 that the net estimate of unworked coal was 100,915,000,000 long tons. This allowed for all possible losses, but at the same time it was recognised that inferior coal and small coal, hitherto discounted, had become of use to sev. important industries, such as the patent fuel trade and the gas and by-product industry. In 1913 Dr. Strahan

	Anthracite	Bituminous	Lignite	Total
Africa . . .	11,662	45,123	1,054	57,839
America . . .	22,542	2,271,080	2,811,906	5,105,528
Asia . . .	407,637	760,098	111,851	1,279,586
Europe . . .	54,346	693,162	36,682	784,190
Total . . .	496,187	3,769,463	2,961,493	7,227,143

TABLE 1. THE ACTUAL, PROBABLE, AND POSSIBLE RESERVES
(Million metric tons. 1 metric ton=2204·6 lb.)

Country	Metric Tons	
	1935	1936
U.S.A.	379,000,000	436,000,000
Great Britain	226,500,000	224,793,000
Germany *	143,000,000	158,283,000
Russia	104,000,000	127,000,000
France	46,212,000	45,226,000
Japan	38,000,000	29,750,000
Poland	29,000,000	27,880,000
Belgium	26,500,000	23,000,000
Indian Empire	21,000,000	15,230,000
Canada	15,100,000	12,400,000
Australasia	12,000,000	12,803,000
Netherlands	11,000,000	12,230,000
Czechoslovakia		

TABLE 2. COAL PRODUCTION OF THE WORLD

* Excluding lignite.

Continents	Deposits in millions of metric tons				Output in millions of metric tons		Consumption in millions of metric tons based on coal figures *
	Coal		Lignite		Coal	Lignite	
	Estimated	Known	Estimated	Known			
Europe	779,753	263,799	110,902	39,271	609.2	210.1	652.7
N. & Central Amer.	2,219,141	27,082	2,723,894	349,247	451.5	5.9	454.3
S. America	32,097	2,082	—	—	3.9	—	6.7
Asia	1,345,458	32,187	16,566	656	129.1	4.0	89.5
Africa	22,132	8,260	1,054	184	15.6	0.26	12.5
Australasia	134,157	2,373	35,298	12,106	12.4	4.0	11.9
World total	4,532,738	335,783	2,887,714	401,434	1,221.7	224.3	—

TABLE 3 A. STATISTICS OF DEPOSITS, OUTPUT, AND CONSUMPTION OF BOTH COAL AND LIGNITE FOR THE YEAR 1936

* The consumption figures relate only to the countries for which statistics are available. Coal-briquettes, coke, lignite, and lignite-briquettes are converted into coal units as follows: 1 ton coal-briquettes = 1 ton coal; 1 ton coke = 1½ tons coal; 1 ton lignite = ¾ ton coal; 1 ton lignite-briquettes = ¾ ton coal.

compiled the report in Great Britain for the XII. International Congress, basing his statistics on the findings of the 1905 commission, modified, however, by further exploration. Estimates were reckoned to a depth of 6000 ft., as against the 4000 ft. hitherto held to be the limit, and the total reserve of coal for the United Kingdom, including Ireland, was put at 189,434,749,920 metric tons. Less than 10 per cent of this reserve is anthracite. The Samuel Coal Commission, 1925, basing its assumption on the figures of previous estimates, reported that at the present rate of output the actual reserve of coal, mined at a depth of 4000 ft., would last five centuries. Taking into

account all probable reserves, including the possibility of mining at a depth lower than 4000 ft., the reserve would last seven centuries or more.

Statistics of C. production in and export from the United Kingdom for the two decades following the First World War, as compared with pre-1914 figures, show a sharp decline. Exports decreased by 40 per cent; the number of mines in operation declined from over 3000 to not much more than 2000, with a corresponding reduction of miners of nearly 250,000. The more economic use of coal and alternative kinds of fuel are largely responsible for the declines. The increasing use of oil has displaced coal to the

Country	Million metric tons	Country	Million metric tons
<i>Europe:</i>		<i>South America:</i>	
Great Britain	181.5	Argentina	2.8
Germany	164.2	Brazil	2.2
Russia	118.3	Chile	1.7
France	87.2	<i>Total</i>	6.7
Belgium	28.3		
Czechoslovakia	21.4	<i>Africa:</i>	
Poland	21.1	Union of South Africa .	12.5
Holland	10.7		
Italy	9.9	<i>Asia:</i>	
Sweden	8.8	Japan and colonies . .	39.2
Denmark	6.4	India	22.2
Austria	5.2	China	20.2
Switzerland	3.5	Manchukuo	7.9
Norway	2.3	<i>Total</i>	89.5
Hungary	2.0		
Spain	—	<i>Australasia:</i>	
<i>Total</i>	652.7	Australia	10.7
<i>North America:</i>		New Zealand	1.2
United States	430.4	<i>Total</i>	11.9
Canada	23.9		
<i>Total</i>	454.3		

TABLE 3 B. STATISTICS ON COAL CONSUMPTION IN INDIVIDUAL COUNTRIES

Coke, briquettes, and lignite are converted into coal. Consumption is the total of production and imports less exports.

Year	Coal produced		Coal, Coke, etc., exported		Bunkers for Ships in Foreign Trade *
	Tons	Value	Tons	Value	
		£		£	Tons
1934	220,726,000	142,119,000	42,582,000	34,603,000	13,487,000
1935	222,249,000	144,539,000	41,870,000	31,578,000	12,526,000
1936	228,448,000	160,119,000	37,348,000	32,292,000	11,948,000
1937	240,409,000	182,674,000	43,463,000	41,888,000	11,703,000
1938	227,015,000	188,822,000	38,196,000	40,713,000	10,489,000

TABLE 4. THE OUTPUT OF COAL IN GREAT BRITAIN, AND THE COAL, COKE, AND PATENT FUEL EXPORTED, IN THE FIVE YEARS PRECEDING THE SECOND WORLD WAR

* Not included in exports.

Year	Tons	Wage-earners	Output per head
1938	226,993,000	781,700	290.4
1939	231,338,000	766,300	301.9
1940	224,209,000	749,150	299.4
1941	206,344,000	697,600	295.8
1942	203,633,000	709,300	287.1
1943	194,493,000	707,800	274.8

TABLE 5. UNITED KINGDOM OUTPUT OF SALEABLE COAL AND WAGE-EARNERS, 1938-43

(Disputes in 1942 caused a loss of 833,000 tons of coal; in 1943 a loss of 1,090,700 tons.)

Year	Saleable Coal produced (million tons)	Average number of Wage-earners	Average Output per Wage-earner (tons)	Average Production Coal per Ton disposable commercially
1939	231	766,000	301.9	16s. 5d.
1944	184	710,000	259.0	33s. 3d.

TABLE 6. FALL IN COAL PRODUCTION, 1939-44

extent of 3,000,000 tons or more a year, and the coal bunker trade (by 1938) had dropped twice that tonnage. Other factors in the retrocession were quotas, restrictions, and price cutting. The output of saleable coal and the number of wage-earners in the years 1938-43 is shown in Table 5. A statistical digest issued by the Ministry of Fuel and Power shows a fall in coal production, coupled with enhanced costs, in 1944 as compared with 1939 (Table 6).

United States of America.—The Amer. coal trade was fully estab. in 1820, although the output was not then very large, when the Schuylkill Navigation Company sent coal down the Lehigh and Delaware Rrs. to Philadelphia. Up to the year 1870 the coal output of the U.S.A. was less than that of either Great Britain or Germany. Then, in 1871, the U.S.A. began to pass Germany, and from 1877 onwards completely left Germany behind. Great Britain's output was passed in 1899, and the U.S.A. are now producing nearly one-third of the world's C. S. In 1920 over 587,000,000 long tons were produced, while in 1923 and 1926 the total was 587,000,000 tons in each year, the average for the decade 1920-29 being over 500,000,000 tons. In 1932 the figure dropped to 317,000,000 tons, and in 1933 to 336,000,000 tons. In the same decade exports averaged nearly 28,000,000 tons. Recent export figures have been lower. In 1929 the U.S.A. had 11.7 per cent of world coal exports; in 1936 the proportion was 9.2, as against the United Kingdom's 40.1 and 34.9 respectively, and Germany's 19.8 and 26.4. The total area estimated to contain coal-beds is close on 500,000 sq. m., of which about 250,530 contain anthracite and bituminous coal, about 100,000 varying grades of bituminous, cannel, and lignitic coal, and the rest ordinary lignite. In the 1913 estimate for the Geological Congress the original tonnage of all kinds of coal on levels above 3000 ft. was reckoned at 3,225,394,300,000 metric tons. The total production of coal to the end of 1910 was 7,480,355,040 metric tons, and an amount equal to half this figure was allowed for waste; it followed that 11,220,532,560 tons out of the original tonnage had been exhausted, leaving a reserve of over 3,200,000,000. See R. C. Smart, *The Economics of the Coal Industry*, 1930; J. O. Nef, *The Rise of the British Coal Industry*, 1932; I. Thomas, *Coal in the New Era: Our National Wealth*, 1934; Political and Economic Planning, *The British Coal Industry*, 1936; Imperial Institute, *The*

Mineral Industry of the British Empire and Foreign Countries: Summary (annual) 1938; H. L. Pirie, *British Coal*, 1944. See also bibliographies for COAL, COAL-FIELDS, COAL-MINING.

Coal Tar, one of the products obtained from the destructive distillation of coal, the others being coal gas and ammoniacal liquor. It consists chiefly of aromatic hydrocarbons, and is usually the heavier of the two condensed products, being a dark-coloured viscid oil. The composition of the tar, however, varies greatly according to the temp. at which it is distilled, or even with the shape of the retort. These hydrocarbons can be separated from one another partly by fractional distillation, they having different boiling points, and C. T. to-day is chiefly valuable because it is the starting point of these by-products. The tar obtained from brown coal and bituminous shale is the foundation of the manuf. of paraffin and mineral oils. Generally, however, C. T. is a by-product in the manuf. of coal gas, and is not as a rule considered to be the prin. product. Only during the last seventy-five years has it become of any importance even commercially. It is interesting to note, however, that Becher and Serle, who took out the first patent for the destructive distillation of coal, in 1861, did so to get C. T. and pitch, not coal gas (Lunge). It is since it was discovered that dyes, drugs, and other important substances can be obtained from it that C. T. became of value commercially. Previously, it used to be burned under the gas retorts, and used for making roofing-felt. For this latter purpose it had to be deprived of its more volatile constituents, benzene being formed in this manner. Again, heavy oils were distilled from it and used for preserving wood, light oils giving naphtha. In 1856, however, the aniline colours were discovered and prepared from benzol, which is obtained exclusively from C. T. A description of the constituents of C. T. cannot be given within the scope of this article, but the following gives some idea of the various products obtained from C. T. Distilled up to 140° C. benzol is obtained, while redistillation of this and a further distilling up to 170° C. yields solvent- and burning-naphtha; heated from 170° to 230° C. the light oil, naphthalene, and carbolic acid are given. Further heating from 230° to 270° C. results in the formation of creosote oil and lubricating oil, these being known as the heavy oils. Beyond this, anthracene oil, anthracene, lamp-black, pitch, and coke are obtained.

The processes are not so simple as they seem, however, and in practice the sp. grs. are noted, as well as the temps., the products sometimes forming at temps. lower than those given above. Further, in the later stages of distillation, some of the earlier products are formed, and have to be separated out. C. T. is of enormous importance on account of the vast number of indispensable substances prepared from its various constituents. Benzene, C₆H₆, the prin. constituent of the lowest boiling-point fraction, is used not merely as a motor car fuel, but also as the starting point for the preparation of aniline, phenol (carbolic acid), picric acid, and innumerable other bodies in general employment as explosives, dyes, disinfectants, drugs, and photographic reagents. Naphthalene and anthracene are the parent substances of large and important series of dyes, while creosote oil is used to preserve wood and for general disinfectant purposes. Pitch finds application in the manuf. of coal briquettes and in the paint and varnish industry. 'Prepared tar,' which is C. T. from which only the more volatile constituents have been distilled off, is widely employed as a binder in road-making. During the First World War, most of the high explosives, as well as tear-gas, etc., were made from substances occurring in C. T., and the research then expended on the subject has borne fruit in later years, particularly in the manuf. of synthetic perfumes and in the preparation of pure organic chemicals for bacteriological, medical, and pathological work. Some million tons of C. T. are produced annually in Great Britain, the U.S.A., Germany, and France, one ton of coal yielding on an average about one cwt. of C. T., or about 11 lb. of benzene and other valuable products, excluding the pitch. See articles on the various substances named above, and read J. J. Redwood, *Mineral Oils and By-products*, 1897; G. Lunge, *Coal Tar and Ammonia*, 1916; A. R. Warnes, *Coal-tar Distillation*, 1923.

Coal-tit, Coal-timousse, or Coalmouse, popular name for the *Parus ater*, or *Parus britannicus*, a small species of Paridae with a black head and dull-coloured body.

Coal Trade. Various laws have been passed regulating the C. T. From very early times the Corporation of London used to weigh or measure all coal brought into the port, while the mayor and aldermen of London and the justices of the cos. could also, by virtue of Acts of Parliament dating back to Edward VI.'s reign, fix the retail price of coal. Further, general taxes have been levied on coal at different times. At one time the Corporation of London could exact these dues. In 1667 they were exacted to aid in repairing the damage done by the Great Fire, and they were continued till 1889, and the proceeds used for civic improvements. In William III.'s reign a tax was levied on sea-borne coal. This tax was abolished for a short time in 1830, re-exacted in 1842, and dropped in 1845. From 1901 to 1906 there was a tax of one shilling levied on every ton of coal ex-

ported from this country. Up to 1913 the C. T. prospered under individualistic control, and immediately after the First World War the coal industry was in better working condition in England than in the rest of Europe. In 1921 came a depression with a mining stoppage of three months. The C. T. improved in 1922, until in 1924 foreign competition began to have its effect, and in 1925, 500 of the Brit. mines were closed. A stoppage of seven months followed in 1926, during which year the U.S.A. nearly doubled their exports and a great stimulus was given to the European C. T., especially



Fox Photos

LEICESTERSHIRE MINERS ON THEIR WAY TO PIT-HEAD BATHS

in Poland. In 1928 the Yorkshire and Midland coal-fields were combined under the Central Collieries Commercial Association, based on the Ithenish-Westphalian Syndicate, which after 1893 had rationalised the Ger. C. T. with marked success. The C.C.C.A. and similar marketing schemes in Scotland and S. Wales regulated the output and stabilised the prices of over 60 per cent of the national production. These schemes were an attempt to overcome the inter-collery competition, due to the individualistic traditions of the coal-owners, and to eliminate the profits of the middleman, thus paving the way towards a national selling organisation for the export trade. (See COAL MINES, NATIONALISATION OF.) Increase of production of Amer. coal, and consequently of Amer. C. T., is due to technical administration and a high standard of output due to machine-cutting. Output per man rose from 3.73 tons in 1913 to 4.78 tons in 1927. An important factor in production, too, has been the increasing regard to the welfare of the miner, evidenced in the provision widely of pit-head baths, canteens, private bus services, and housing

schemes. Under a scheme announced in June 1948, univ. scholarships are awarded by the National Coal Board to selected pit workers to enable them to qualify in mining engineering and allied subjects. Statistics of Brit. and Amer. export trade are given under COAL SUPPLIES. See also R. C. Smart, *The Economics of the Coal Industry*, 1930.

Coalville, tn. and dist., Leicestershire. The tn. is 5 m. distant from Ashby-de-la-Zouche and 16 m. from Leicester. Coal mines are in the dist. Pop. 20,500.

Coanza, or Quanza, one of the main rivs. of the Portuguese W. African country of Angola; it flows in a N.W. course and finally reaches the Atlantic, where it has attained to a breadth of 1 m., owing to the many falls as well as tribs. which have contributed to its bulk on its journey to the sea. The riv. is unnavigable in parts owing to the Cambambe Falls, but it can be navigated for a distance of 120 m. from its mouth as far as these falls.

Coast (Lat. *costa*, a rib), border of the land as it meets the sea, forming a shore line of more or less irregularity of contour, according to the various causes which have been at work. Though the sea-C. is generally *invariant* when the word C. is used, it is also applied to the shores of large rivs. or lakos. Many elements combine in producing the various types and varieties of Cs., of which the broad outlines may be described, though, of course, no two Cs. are exactly alike in detail. The chief agents in the sculpture and formation of the C. are the currents of the sea and the erosion caused by the waves; these agents have to work on widely different kinds of material, as some Cs. are of hard rock, others of sand, and others again of heterogeneous rocks. It is estimated that nine-tenths of the world's coastline is fringed with sand. The presence or absence of sand-dunes depends mainly on the nature of the rocks along the coast. The waves lorned by the winds run ashore and beat upon the land, the C. of which is gradually worn away by this unrelenting and unrelenting attack; the land which is washed away is carried into deeper water, and so the area of the land is reduced. The character of the C. has a great effect on both the coastwise trade and the international trade of a country; for neither form of commerce can attain great proportions unless there is a sufficiency of safe harbourage for the vessels engaged in it. Shore-lines in their original form, that is to say, before they were changed by the action of the sea, may be divided into two main categories. The first class is that produced by the land having been raised, the second where it has been lowered. Where the sea lies on an uplifted bottom, the shore-line would be of an unbroken and simple character, and would be bordered by shallow water. The shore-line would be of a broken and more complicated nature, and bordered by deeper water, where the sea lies on a depressed land surface. Shore-lines belonging to the first category are generally deficient in harbours, and

traffic between land and sea is by no means easy. As an example the C.-line of Buenos Aires may be cited; the waters are shallow for a long distance from the shore-line, and artificial harbours have to be dredged before vessels of any size can approach close to the land. The shore-lines of the second class are, as a rule, well supplied with harbours situated in sheltered bays. An irregular C. is favourable to the development of the maritime arts and to the breeding of expert sailors and fishermen; among examples of shores of this class may be mentioned those of Patagonia and Norway. If the C.-line runs parallel to a int. range, it is, as a rule, of a more regular character than when it crosses the folds of the range. A recently elevated C. is more irregular in outline than one which has been exposed to the action of the waves for a long time. The irregularities which were impressed upon the surface of a recently depressed C. before submergence took place will be traceable in the C.-line. If a C. is composed of homogeneous rock, and the action of the waves is similar along its extent, the outline formed will be regular; if, however, the rocks composing the C. are of varying degrees of hardness, bays and inlets will be eaten out of the softer rocks, and headlands, etc., will be formed of the harder rocks. The same results will be obtained if the rocks of the C. are homogeneous, but the action of the waves varies, as where the waves are more violent bays will be formed. In shores of the first class, the waves of the sea, especially in stormy weather, beat up the sands of the bottom, and in course of time build sand-reefs off the shore. These reefs enclose long, narrow lagoons; the finer particles which compose them are swept away, but the reef is not destroyed thereby, for the loss occasioned is repaired by the sand which is brought in from the sea bottom. The ebb and flow of the tides and the action of the rivs. preserve inlets through the reefs; the number and size of these inlets are, of course, regulated by the strength of the tides. On the C. of Texas there are few inlets, and traffic between land and sea is cut off for long distances; one reef extends for nearly 100 m. with no inlets. On the C. of S. Carolina, where the tidal action is very strong, the inlets are very numerous, and traffic is not so much impeded. The depth and even the outline of the channels on Cs. of this nature may be changed so rapidly by the action of tidal currents that charts are unreliable, and local pilots must be employed by the captains of vessels. Tidal deltas are also formed by the action of the tides, and their outer edge often forms a bar which is only navigable at high tide. When the sand is brought to a reef in greater quantities than it is carried away, the reef advances into the sea, and may be a mile or more wide; at Atlantic City, in New Jersey, U.S.A., the reef is gaining on the sea in this manner. If, on the other hand, more sand is carried away than is gained, the reef gradually becomes smaller, and at

length disappears, when the mainland is once more exposed directly to the action of the sea; the low C. of the middle Netherlands has thus retreated. It is of rare occurrence for coastal plains to end in cliffs which are at a great height above the sea. Such a phenomenon would be of comparatively frequent occurrence if the action of the sea on a coastal plain were uninterrupted for a long time; it is therefore inferred that such a development is generally interrupted by either a subsidence or an upheaval of the land. The best example of the results of such an uninterrupted development may be seen in the coastal cliffs of Normandy in France. The progress of formation of C.-lines of the regular first class is often interrupted by depression of the land. The C. is then changed into one of the second class, though the bays and headlands will not be of extraordinary magnitude. In the same way, the land may be elevated and interrupt the C. formation, but in such cases the effects are not so easily visible. The former C.-line will be marked by low sand dunes and ridges, if no very advanced stage of development had been reached before the upheaval, or by higher terraces and bluffs, the height of which will vary according to the progress made. The coastal plain of Mexico, for example, is marked by several terrace-like benches or steps; it is inferred from this that the elevation of the country took place gradually, thus giving time for the effects of the action of the sea between each upheaval to be perceptible. When an uneven land surface is partly submerged, the valleys become bays and the hills islands. The forms of the land present more variety than those of the sea bottom, and hence shores of the second class are more varied in outline. The sea's action will be greatest on the projecting headlands and outlying islands. The rock fragments, weathered from the C., after being rounded by the action of the waves, grind the rocks at their base and cut a notch in the edge of the land. The base of the cliff thus formed is worn away by the dashing of the waves, great masses of rock fall, and the shore is gradually worn away. Isolated rocks, 'needles,' and columns, are often left off the shore in such cases; the 'Old Man of Hoy,' in the N. of Scotland, is an example. If a shore-line of the second class suffers a further depression, the sea will begin its action on the cliffs in much the same way as before; the lines of the C. will naturally be altered, and the former is, in many cases, be submerged. When an upheaval takes place, the former C.-line may be traced at some distance from the new one; the cliffs and beaches which composed it are distinct at first, but in course of time are affected by the weather, and become merged in the general character of the land. Along the W. C. of Scotland there are evidences that the land has been uplifted for 20 or 25 ft.; the cliffs of it stretch inland, and the former C.-line was more advanced in character than most of the present C. The bays of the former shore-line, when elevated, form coastal

plains lying between rugged headlands; such formations form most beautiful scenery, and abound along the shores of Italy. The W. C. of Norway now stands some hundreds of feet higher than in former times, as is evidenced by the platform or bench, of low land which borders the mts. which formed the ancient sea cliff. From the fjord and its configuration of the C., it is probable that after the platform mentioned above had been cut, the land was raised even higher than it now is, and was eroded by glaciers. A depression then took place which drowned the valleys and created the present multiplicity of is. Where one part of the cliff is weaker or composed of softer rocks than the rest, the waves in time excavate a cave; among the numerous examples of such, Fingal's Cave on the is. of Staffa, Scotland, and many caves on the C. of Maine, U.S.A., may be mentioned. S.-lines are affected by climate and temp. as much as the land. In Arctic climates the land is bordered by a fringe of ice, known as the 'ice foot.' In the equatorial and warm seas certain kinds of trees grow on the shores and impede landing; of these the most important is the mangrove-tree. Coral reefs also are found in these waters (for their formation and action, see ATOLL, CORAL, GREAT BARRIER REEF, etc.). The waves and currents of lakes are not so violent as those of the open sea, but the Cs. of lakes exhibit many features analogous to those of sea-Cs. The S. shore of Lake Erie, for instance, has been washed away so as to develop low cliffs of a fairly even front for many miles. When lakes are formed at the back of barriers of glacial drift, their waters may rise upon a land surface of much irregularity, and the Cs. of the lake thus be of very varied character. Lake Lucerne, Lake of the Woods, and Lake Superior are examples of irregular lakes. The indication and measurement of C.-lines vary on maps according to the scale thereof, as it is, of course, impossible to show as much detail on a small-scale map as on a large one. When the scale is very large, two C.-lines will be shown, the one showing the position at high-water, the other at low-water mark. The measurement of the C.-line is also a matter of some difficulty, as when all irregularities possible are included, the length is of necessity greater. There are two methods of measuring; the first way is simply from point to point of the headlands of the C. The other way is to include every bay and inlet, and to measure up every riv. to the point where the action of the tide ceases. The ratio between these measurements is an indication of the coastal development of the country measured. See E. M. Ward, *English Coastal Evolution*, 1922.

Coastal Command, development of 'Coastal Area, R.A.F.,' which was formed towards the end of the First World War; to develop, in relationship with the Admiralty, all aspects of air co-operation in a war at sea; to administer and train the Fleet Air Arm on land, and to

develop flying boats for the defence of trade and Imperial communications. In 1937 the administration of the Fleet Air Arm was transferred from the C. C. to the Admiralty and the main function of the Command then became the provision of trained shore-based squadrons for the defence of trade and for closer co-operation with the navy in home waters. The C. C. was divided into groups whose geographical boundaries conformed to those of the naval commands on shore with which they were associated. These groups covered all Great Britain and N. Ireland, while there was a separate group in Iceland (q.v.) and a station at Gibraltar. Each air force group and naval command had an Area Combined Headquarters, where the operations room common to both services was situated. The army staff responsible for the anti-aircraft and other defences were normally part of headquarters. In the operations room were boards and charts setting out all the information shown separately in the rooms of the various combined headquarters, while for plotting operations there were large wall maps of the oceans showing the position of convoys, escort vessels, and enemy raiders at a glance. The efficiency of the various headquarters depended largely on a rapid and secret system of communications. Attached to headquarters of both groups and stations was a meteorological section, of vital importance for weather forecasts. In the intelligence room information from the air-sea front line was received and interpreted. The interpretation and processing of photographs was the work of a specially trained staff. Intelligence officers had to be able to discover without delay all about enemy ships, their dimensions, armament, and cargoes; enemy convoys and their destination; enemy aerodromes and aircraft based on them; guns, balloons, and other defences surrounding targets. That the work of the C. C. airmen in the Second World War was of the highest importance might be inferred from the fact that their patrols for the protection of ocean convoys covered more than half the seas from the Arctic to the Equator, and from the Bay of Biscay to the Amer. shores, throughout the duration of the battle of the Atlantic. It was due to spotting by their craft of the *Bismarck* (q.v.) weighing anchor for her first and final sortie that that warship was so soon sunk. Aircraft in use with the command for general reconnaissance and convoy protection included both shore-based machines and flying boats. Among the former were the Anson (later replaced by faster craft), the Amer.-built Hudson, the Liberator—well armed with gun turrets and a formidable foe of the Ger. Focke-Wulf and U-boats for which latter it carried depth-charges—and converted Wellingtons and Whitleys. The chief flying boats in use at the beginning of the war were the Stranraer (withdrawn in 1941), the London, the Sunderland, the Amer.-built Catalina which had no superior for long-distance

patrol work (one was in the air for over twenty-six hours during the operations which ended in the sinking of the *Bismarck*), the Lerwick, and the Northrop (a float-plane). Beauforts were used for torpedo attack; Hudsons, Whitleys, and Wellingtons for bombing; and Beaufighters and Blenheims for long-range fighting. At the beginning of the war the Command had no more than 171 aircraft and beyond their range protection for convoys had to be provided by aircraft carriers. Wellingtons were fitted with a device for exploding the magnetic mines laid by the Gers. in Brit. waters, but such mine-sweeping from the air was a hazardous task. From the outset the Command joined with the navy in attacking the U-boat wherever and whenever it was located. The prison-ship *Altmark* (see NAVAL OPERATIONS IN SECOND WORLD WAR) was discovered in Josing Fjord by C. C. reconnaissance. Valuable protection was afforded by Hudsons and other aircraft of C. C. for the armada of small ships which evacuated the Brit. Army from Dunkirk at a time when the numerous Ger. Heinkel machines dominated the skies. The U-boat nest at St. Nazaire was frequently raided by C. C. in 1940 and after, and the dockgate there was destroyed in a combined-operations raid. Innumerable attacks were concentrated on Brest and on the Ger. battleships *Scharnhorst* and *Gneisenau* anchored there. Among the perils encountered by the airmen of C. C. on their long and unremitting tasks, the chief was weather, a greater peril than even the enemy 'flak' or his fighter craft. C. C. largely reduced the menace of the Focke-Wulf. Frequently U-boat crews surfaced and surrendered to C. C. aircraft. With mine, bomb, and torpedo, C. C. maintained throughout the war an unrelenting offensive against the enemy's shipping along the coasts of Europe, and thus imposed an ever-increasing strain upon his land communications. See H.M.S.O., *Coastal Command*, 1942.

Coast Defence, required by a maritime nation to protect her commerce in time of war. The systematic defence of the coast by means of fortresses is a necessary protection to the navy, and such defences serve as a basis of operation and a safe harbour to the fleet. These fortifications also afford protection to the magazines and collected stores and materials, with which the fleet may be speedily equipped should war break out suddenly. Large inlets, bays, and riv. mouths are usually chosen as the safest sites. It must also be remembered that such depots, etc., are liable to attack by land as well as by sea, and must be protected against attacks in the rear and flanks. The fortress, then, must be able to obstruct any entrance on the part of the enemy by cutting off any side channels, while leaving, at the same time, a free entrance to the home fleet. The fortresses are equipped with torpedo-boats, bomb-proofs, searchlights, etc., and a strong artillery is essential for the proper defence thereof. In Great Britain the C. D.

is procured by means of a group of one or more fortresses, set at a certain distance along the sea coast. In each fortress is a fixed armament of heavy and light batteries and quick-firing guns, which are used particularly to withstand a frontal attack by sea. There is also a movable armament of machine guns for use in a rear or flank attack by land. A large fortress is divided into sections, so that, by scattering the forts, the enemy may be prevented from concentrating their fire. Each group of batteries is under the control of fire commanders, the highest executive rank of artillery command. In modern warfare it is essential to have a strong army to back up the navy in time of difficulty, as was seen in the Russo-Jap. war. Accordingly, a strong coastguard corps should be supplied to prevent landing at any weak points along the coast.

During the First World War, the greatest attack on C. D. was that at the entrance of the Dardanelles (q.v.) in 1915, when the allied fleets of Great Britain and France attacked the Turkish fortresses. The land batteries were armed with 9- and 10-inch guns on each side of the entrance and 9-, 10-, 11-, and 14-inch guns and mortars on each bank at the Narrows. The attack was carried on intermittently for about a month, but the fleets lost so heavily that it was decided to await the land attack. The combined attacks by land and sea failed to reduce the Turkish defences and the allied forces withdrew from the Gallipoli peninsula (q.v.). It was expected in this war that the extensive use of aircraft and submarines would change the character of C. Ds., but it was found that the counter-measures neutralised any forms of attack from these new machines of war. Aircraft proved to be particularly vulnerable to the C. D. artillery, which could, from concealed positions, also attack ships at a greater distance than formerly, and with better control of fire. On the other hand, shore batteries had to be better concealed and protected in case of an aerial bomb attack. In the Second World War coastal anti-aircraft guns were far more powerful than in the First World War and were far more numerous. Moreover, fighter planes had to be regarded as an essential factor in C. D. (See also COASTAL COMMAND for measures taken to protect coastal and other convoys.) Shore defences were more elaborate than in the First World War. In anticipation of a possible Ger. invasion cement blocks or anti-tank obstructions were sown thickly along the coast wherever a landing might seem to be practicable, and formidable iron and wire barriers were erected in the sea a short distance off-shore. Further, mine-laying was much extended so as to render approach by enemy surface or other sea craft both difficult and hazardous. See ARMUNITION: ARMY; ARTILLERY; NAVY; ORD-NANCE; SUBMARINE MINES; TORPEDO.

Coast Erosion, see COAST PROTECTION; EROSION.

Coastguard. The C. service was organised after the Napoleonic wars to prevent smuggling. It was under the control of the Customs until 1831, when it was transferred for administrative purposes to the Admiralty and, in 1856, placed entirely under the direction of the Admiralty, its purpose being the protection of the shores of the United Kingdom. The coast is divided into six dists.: Scottish, E., S., W., S. of Ireland, and the N. of Ireland. The service is under the direct control of the admiral-superintendent of naval reserves. Each dist. is divided into forty-four divs., which in turn are divided into stations, over each of which is an officer in charge. The total number of men in the service, including officers in charge of stations, petty officers, and seamen, is about 5000. The Cs. are generally men who have seen active service. Each dist. has a ship in command of a captain. The duty of the Cs. is to patrol the coast day and night between the stations, to signal to vessels out at sea in distress, to be ready for life-saving in time of shipwreck, etc., and they also have duties in connection with the customs. In 1923 the Brit. C. service was reorganised and the Board of Customs and Excise and the Board of Trade now control the service. Since 1925 it has been largely a life-saving service with very much reduced numbers. In the U.S.A. a C. service was created by an Act of Congress in 1915, absorbing the previous duties of the revenue cutter and the life-saving services. This service is responsible for maintaining the N. Atlantic International Ice Patrol. See also under SIGNALS.

Coasting Trade, shipping trade carried between ports of the same country. In Great Britain C. T. includes, by law, all trade by sea 'from any one part of the United Kingdom to any other part thereof.' Formerly such trade was limited within the United Kingdom to Brit. vessels, but in 1854 an Act was passed extending the privileges of coastwise trade to foreign ships. There are special rates of harbour, pier, and dock tolls, and pilotage, tonnage, duties, etc., allowed to coasting steamers. Ships while they are engaged in C. T. may not deal with foreign ports; but certain provisions are made for steamers, from a foreign port, engaged in trade with more than one port in the United Kingdom, and for steamers, bound for a foreign port, that must call for cargo or passengers at more than one port in the United Kingdom. Great Britain is the only country that has opened her coastwise trade to all the world, but, nevertheless, the share of foreign nations in the trade is only reckoned at about 10 per cent. The coastwise trade of Great Britain in general amounts in total tonnage to a little more than half the shipping entering the ports of the United Kingdom.

Before the First World War the tonnage of ships departing from Brit. ports on the C. T. amounted to 85,000,000. The post-war trade by 1930 had approached to within 15,000,000 of that figure, and by

1937 was over 65,000,000. In the U.S.A. a considerable domestic trade is carried on by water. About 230,000,000 tons of cargo are shipped annually from one port to another on the Atlantic and Pacific coasts and in the gulf of Mexico. A C. T. also flourishes on the Great Lakes and commerce is conducted by water to the extent of 120,000,000 tons of cargo annually. On the Atlantic coast the centre of trade is the port of New York, and about 2,000,000 tons of cargo are shipped annually from there along the coast to the ports on the New England coast. The trade from New York is mostly in wool, cotton, hides, and metals, and the return trade from New England to New York is of equal volume. In Canada the Brit. ships employed on the C. T. both between seaports and on the Great Lakes have a total tonnage of 40,000,000 for steam and motor vessels, and 3,000,000 for sailing vessels.

Coast Protection, result aimed at by the various devices which are adopted for the protection of the land from erosion, damage by waves, etc. The main object in the reclamation of land is the increase of cultivable ground; it is principally in connection with such reclaimed land that protective works are necessary, though in many cases they are adopted rather to prevent the encroachment of the sea than to retain land already won. There are two prin. kinds of protective works, sea-walls or banks, and groynes. There are three main kinds of walls, those with very sloping batter, vertical, or stepped batter. The best form appears to be a wall with an almost vertical face, or alternatively slightly stepped. The vertical face resists the action of the waves most, and is thus opposed to more force, but it also breaks the recoil; a wall with a face sloping inward has not so much resistance to meet at the first onslaught of the waves, but by its form it accentuates the recoil; a stepped wall breaks the force of both the waves and the recoil. In the case of the two former kinds of wall, they are particularly liable to be undermined by the action of the waves, and should be protected at the foot by an 'apron.' If the foreshore consists of hard rock this is not so necessary, as the shore itself fulfils the function. Generally speaking, however, sea-walls are not satisfactory, regarded as the sole means of protection for the coast, and must generally be supplemented with groynes. They are very costly, and although they may seem at first to resist the erosive action of the sea, they, in reality, increase it.

The other form of C. P., that afforded by the construction of groynes, is on a different principle. Groynes promote the natural accretion of detritus or eroded material on a beach by the construction of artificial shelter. The littoral drift of sand down a beach may be intercepted by means of groynes projecting from the beach line, and so accretion of sand may take the place of erosion. This is, of course, the ideal result of groynes, but there are sev. difficulties and disadvantages to be overcome. The building of

groynes has, in fact, been a matter of trial and error. Erosion produces a littoral drift, and much of the drifted material is of necessity carried out and deposited in deep water. If high groynes are used, the two sides of the groyne will not receive the detritus equally, and one side will be denuded; this difficulty is found at Dungeness, Cromer, and Hastings, for example. The general effect of groynes is to render the adjacent portion, not so protected, more liable to the eroding influence of the waves. The distance to which groynes can be carried out to sea



John H. Stone

LOWER CLIFF WALK, BRIGHTON

Promenade on sea-wall, at 'stone and wooden groyne'.

determines their efficacy in collecting drift: they should always reach low-water mark. The beach of any shore, which is composed of movable material, should gradually slope up to high-water mark in the form of an ellipse; the sea will then not do much damage, but roll in and out without erosion. This result is attained by raising the groynes slightly above the beach and promoting the accumulation of drift to leeward, as the scour of the waves is lessened and the passage of the detritus over the obstacle facilitated. As the drift accumulates, the groynes should be gradually raised, if necessary, and extended. The direction of the wind controls the travel of the drift, as the latter veers with the wind. In England there are examples of groynes of every design, laid out at every sort of angle. They used to be laid out at right angles, but no rule can be applied to a varying coastline,

for the groyne should be designed to meet squarely the waves driven by the prevailing winds. The proof of good design in groyneage is that the accumulation either side of the groyne should be equal. Where a coast is fringed with sand dunes, the beach should be protected from erosion by a regular series of groynes; the dunes or the promenade then receive sufficient protection by a simple sloping wall, with a maximum inclination of two to one. Bridlington beach is protected by groynes, with very good results, as are the sandbanks at Poole harbour. Among other places at which groynes have been instrumental in improving the condition of the beach may be mentioned Sheringham, Weymouth, Cromer, Eastbourne, Dymchurch, Deal, etc. A more detailed account of the groynes at Bridlington will serve to show the results in this particular case, and the general principles acted upon. The Bridlington beach, which rests upon boulder clay, was rapidly being lessened as the result of increased erosion due to the erection of sea-walls. Groynes consisting of piles with dimensions of 14 ft. by 9 in. by 9 in., made of pitch-pine, and 11-in.-by-4-in. planks, were erected along the seashore. To obviate the denudation of the sand to leeward, the planking was at no time raised more than two strakes above sea level, but fresh planks were added as necessary. The prevailing gales in the winter are S.E., and hence the groynes were slanted 10° S. of E., from the perpendicular. The cost of this operation was between 12s. 3d. and 18s. per lineal foot, and very good results were obtained. In Poole harbour the groynes were built at varying angles, and there is no doubt that if it had not been for these preventive measures the harbour would have been silted up. The timber groynes which were built on the beach between Latching and Shoreham had the effect, in the course of a few years, of causing the high-water mark to recede 85 ft. Low wooden groyneage has been used for the preservation of Romney Marsh. It was inexpensive and has proved successful. At Blankenburgh, groynes were constructed which had an excellent effect in checking the eroding action of the R. Scheldt. They were 820 ft. long, and at intervals of 680 ft., they extended to below low-water mark, and were at right angles to the beach. In order to facilitate the even distribution of drift over the whole area to be protected, and to lessen the erosion from wave action, the groynes were raised only slightly above the beach. They were built with wide tops and had a foundation of fascines and concrete, faced with brick-work or stone pitching. The result was to form practically an ideal sloping beach (*cf. supra*), on which wave action was reduced to a minimum. This type of groyne is, however, too expensive for general use. The extension of groynes below low-water mark is advocated by some engineers, and as submerged wood, even when treated to a creosoting process, is always liable to be attacked by such enemies as the teredo, concrete and other

similar materials have been suggested for groynes. Experience alone will prove which is the best material. For C. P. in Holland sea-walls or dikes are used in addition to groynes, and for the protection of submerged banks fascine mattresses. The latter are made of willow brushwood and are ballasted with stone. The Zuider Zee has now been enclosed and partly reclaimed. The prin. method of construction for the enclosing dike is an exterior dam of boulder clay, and behind this sand covered with a layer of clay, having a facing of stone both sides.

Another important feature of C. P. is dune fixation. The importance of this is recognised in the U.S.A., and grass is generally planted. In England marram grass has been used successfully, notably on the Norfolk coast, and on shingle beaches for protection against on-shore gales tamarisk is recommended.

Under the Coast Protection Bill (introduced in 1948) amending the law on C. P. against erosion, the council of each maritime co., bor., or co. dist. will be the protection authority. Orders may be made for setting up C. P. Boards, which will be empowered to raise money for protection work and to hold land. Development of land will not be allowed unless the protection authority certifies that it is consistent with C. P. See W. H. Wheeler, *History of the Fens*, 1897, and *The Sea Coast*, 1902; F. M. du Plat Taylor, *The Reclamation of Land from the Sea*, 1931; E. R. Matthews, *Coast Erosion and Protection*, 1931.

Coast Ranges, system of mts. in N. America extending along Brit. Columbia, Washington, Oregon, and California, and almost parallel to the Pacific coast. These mts. are very irregular, sometimes attaining to a great height and then remaining at a comparatively low one for a considerable distance. The character of the scenery is also very varied, the mts. in some places being almost bare, and in other places being densely covered with thick forests of trees. In Brit. Columbia the Coast Range, called also Cascade Range, average a height of 6000-7000 ft., although some peaks attain to a height of 9000 ft. Many of the trees on the slopes of the C. R. grow to an enormous height, of which the Douglas spruce is an excellent example, being 250-300 ft. high. In Washington the mts. are called the Olympic group and are very rugged, the highest peak, Olympic, being 8150 ft. high. The mt. range diminishes in size in Oregon, averaging between 4000 and 5000 ft. in most parts. In California the C. R. present an insignificant appearance for about 400 m. Further on, nearer San Francisco, they attain to a great height in some peaks, whilst not far from Los Angeles the San Bernardino peak rises 11,100 ft. high.

Coatbridge, tn. of Lanarkshire, Scotland, 9 m. E. of Glasgow, and one of the eleven vills. in the par. of Old Monkland. It became a municipal bor., with the privileges of a royal burgh, in 1885. There are sev. large collieries and an important iron and steel industry. C. lies

in the centre of a mineral dist., and possesses in addition to sev. churches a technical school, various municipal buildings, and two fine parks. Pop. 43,000.

Coatapec, tn. in the Atlantic state Vera Cruz, Mexico, 58 m. distant from the cap. Pop. 10,000.

Coates, Albert, Eng. musical conductor, b. April 23, 1882, in St. Petersburg (Leningrad), of wholly Eng. parentage. Educated at Buckhurst Hill School, and studied science at Liverpool under Sir Oliver Lodge. Returned to Russia. Entered Leipzig Conservatorium; joined Nikisch's conducting class. Conducted Imperial Opera at St. Petersburg five years. Came to England in 1919, conductor to Sir Thomas Beecham at Covent Garden. Conductor of London Symphony Orchestra and Royal Philharmonic Society. Director, Philharmonic Orchestra, Rochester, New York, 1923 to 1925 when he returned to England. Director of Brit. music-drama opera season at Covent Garden, 1936. Operas: *Samuel Pepys* (1929); *Pickwick* (1936).

Coates, Eric (b. 1886), Eng. composer, b. at Hucknall, Nottinghamshire. He won a scholarship at the Royal Academy of Music in 1906. For some years after 1912 he was prin. viola at Queen's Hall. His compositions include chamber music and many songs and marches.

Coates, John (1865-1941), Eng. tenor singer, b. near Bradford; began his music as a choirboy. When his voice broke he had been trained as a baritone, and he pursued his career as a baritone in light opera in England and America for some time. In 1899 he was striving to achieve a reputation as a tenor, producing in that year Sullivan's setting of Kipling's *Absent-minded Beggar*. His chance came at Worcester three years later, and henceforward the prov. festivals sought him for leading parts, especially in modern oratorio. He sang in Elgar's later works at Birmingham, in Bantock's *Omar Khayyám* there, and in Walford Davies's *Everyman* at Leeds. He made his first appearance in London in 1894 at the Savoy Theatre, and eventually, in 1901, took part in the Covent Garden opera. His name is inseparably linked with Elgar's *The Dream of Gerontius*, the occasion of his first singing the name part, in Worcester in 1902, being the real launching of Elgar's masterpiece on its career of wide popularity in England. Sang in different parts of Germany, and the U.S.A.

Coates, Joseph Gordon (1878-1943), New Zealand statesman, was b. at Matakohe, son of Edward C., farmer. Educated privately. Became M.P. for Kaipara, 1911. Served with Infantry in France, Jan. 1917 till Feb. 1919. Attained rank of major and received Military Cross. On return home took office under premier Massey; filled offices of postmaster-general and minister of public works. Became Prime Minister on death of Massey, 1925. His Reform party was defeated at the general election of 1928, and he was succeeded by Sir Joseph Ward, leader of the new United

party. Held various offices in the Coalition Gov., 1931-35.

Coatesville, bor. in Chester co., Pennsylvania, U.S.A., 37 m. W. of Philadelphia. It is situated on Brandywine Creek. Its chief manufs. are paper, steel rails, and boilers. Pop. 15,000.

Coat of Arms, see ARMS, COATS OF, and HERALDRY.

Coati, or **Coati-mundi**, genus of Procyonidae, related to the racoon. They are indigenous to N. and S. America, are gregarious and arboreal; the nose forms a mobile proboscis useful in digging up its food.

Coats, James (1774-1857), founder of a cotton-thread business in Paisley, which is now known as J. and P. Coats Ltd.

Coats, Sir Peter (1808-90), and **Thomas** (1809-83), sons of James C., b. at Paisley, both Scottish thread manufs. Both gave generously to many philanthropic schemes, and Paisley owes much to them.

Coats Land, region of Antarctica, in the Amer. quadrant, skirting Weddell Sea. It was discovered by Bruce, and named after the brothers Coats.

Coatzacoalcas: 1. Riv. in Mexico which has its rise in the Sierra Madre, Tehuantepec Isthmus, and ultimately falls into Campeachy Bay. In length it is 150 m., and is navigable for about 30 m. from its mouth. 2. Puerto Mexico, port in Vera Cruz, Mexico, on the gulf of Mexico. The E. terminus of the Tehuantepec railway across the isthmus, standing at the mouth of the wide and deep C. R. The climate is hot. Two converging jetties about 4333 ft. long extend from the mouth of the riv. to the sea to prevent the formation of a bar. Its wharves are equipped with electric cranes. The beach is the main street. Pop. 20,000.

Cob, see HORSE.

Cobalt, tn. in Ontario, Canada. 330 m. N. of Toronto, named from the abundant supply of cobalt ore. Nearly 300,000 ounces of silver were produced in 1903-18, but much less later. The first valuable discovery of ore was made in 1903. Pop. 4000.

Cobalt and Cobalt Ores. Cobalt (symbol Co, atomic weight 5.90) is a metal of the iron group of elements. It is a hard white metal resembling nickel, produced by the reduction of its oxide or chloride by hydrogen or carbon. Like iron and nickel, it is magnetic, although to a lesser degree. The element is remarkable for the brilliant colours of some of its compounds. Thus a blue colour is imparted to potash glass by the addition of a little C. salt, when C. silicate is formed. C. is a relatively rare metal, but plenty of it is found mined with the silver ores in Ontario round about C. The chief ores are C. glance (CoAsS), the arsenide, and sulphide; smaltine (CoAs₂), the arsenide; and C. bloom, which is an arsenate of the metal. These are converted into oxide by roasting and reduced with carbon. The metal itself is becoming increasingly important as a constituent of various alloys, while its compounds are used in the manuf. of paints (both as pigments and as driers). C.

chloride gives a pink solution in water, which forms a favourite invisible ink; writing done with this liquid is invisible—more or less—when dry, but goes brilliantly blue on warming.

Cobán, cap. of Alta Verapaz, Guatemala, Central America. It is situated in the finest coffee dist. of the republic. Chalk is found there and made into crayons. Pop. 4640.

Cobar, municipality and post tn. in co. Robinson, 350 m. N.W. of Sydney, New S. Wales. The dist. is the centre of copper gold, and silver mining: wool-growing is also an industry. Pop. 4000.

Cobb, Irvin S., b. Paducah, Kentucky, U.S.A., Jan. 22, 1876, and graduated from univ. of Georgia. Held various positions as reporter and on editorial desks in Paducah, Louisville, and New York city, and then became a regular staff contributor to various Amer. magazines, specialising in the short story, of which he is considered one of the best modern exponents, particularly of the story in a humorous vein. Many of his stories deal with his native Kentucky, of which he has made himself a sort of prose laureate. Among his best known books are *Old Judge Priest* (1915) and *Red Likker* (1929).

Cobbe, Frances Power (1822–1904), Eng. writer, and social investigator. She was a staunch supporter of women's suffrage and the founder of the National Anti-Visitation Society. Pub. *An Essay on Intuitive Morals* (1855); *The Duties of Women* (1881); and *The Scientific Spirit of the Age* (1888).

Cobbett, William (1763–1835), author and politician, was of lowly origin. As a lad he tilled the soil, but at the age of twenty became a solicitor's clerk. Finding the life ungenial, he enlisted and went with the 54th Regiment to New Brunswick. He was soon promoted to the rank of sergeant-major, and, entrusted with the keeping of the regimental accounts, he discovered peculations on the part of some officers. He secured his discharge and gave information to the War Office. A court-martial was summoned, but C., learning that he was to be confronted with perjured witnesses, fled the country. After a brief sojourn in France, he went to the U.S.A., where he found full play for his talents as a pamphleteer. He became a noted character, and his fame spread to England, where many of his writings were reprinted. His hatred of shams and dishonesty eventually made him the defendant in a libel action, which, being decided against him, ruined him. He returned to England in 1800, and was taken up by the Tory leaders, Wyndham and Dr. Lawrence providing him with funds to start the *Political Register* in 1802, which was pub. weekly until his death. His industry, as he was never tired of pointing out, was prodigious, and his output enormous. Besides writing the greater part of the *Register*, he was the author of many books, mostly of a utilitarian nature, such as *Cobbett's Cottage Economy* (1822) and *The English Gardener* (1829). He also originated and ed. the

Parliamentary History, the *Parliamentary Debates* (later to be known as *Hansard*), and the *State Trials*. His most characteristic book is *Advice to Young Men* (1830); his best, *Rural Rides* (1830). His great merit as an author was his clear, vigorous style. An active politician, he was always on the side of the oppressed, for whose cause he was always willing to suffer. He was prosecuted by the gov. in 1810, and imprisoned in Newgate for two years; and in 1817, on the suspension of the Habeas Corpus Act, he went to America to escape a second period of incarceration. It was his perpetual endeavour to stir up the poor to demand better conditions and to secure a greater control of public affairs. He was, indeed, one of the most strenuous advocates of parl. reform, one of the most valuable of his pubs. the *Register*, reaching a vast public. Appropriately enough, he was returned as a member of the first Reform Parliament, but he was then too old to achieve any marked success in a new sphere of activity. He had great, even overweening, self-confidence, and even where he failed, he showed the path to others, and many of the reforms that have been effected since his day were due to his teachings. See L. Melville, *The Life and Letters of William Cobbett in England and America*, 1913; G. D. H. Cole, *The Life of William Cobbett*, 1924, 1947; M. Bowen, *Peter Porcupine*, 1935.

Cobbler, The, or Ben Arthur, mt. of Argyllshire, Scotland, 3 m. W.N.W. of Arrochar. It is 2891 ft. high and has some interesting rock-climbs.

Cobden, Richard (1804–65), statesman, was the fourth of eleven children of a small Sussex farmer, who fell on evil days and had to part with his farm soon after Waterloo. Richard was taken charge of by relatives, who sent him to a rough and ready school in Yorkshire. Later he became a clerk, and then a commercial traveller, until in 1828 he set up in business on his own account as a calico merchant in Manchester. The business prospered, and eventually the merchant became a manufacturer, and found time to remedy some of the defects of his education. Economics was his favourite study, and he became an active advocate of free trade. He gave expression to his views in pamphlets issued respectively in 1835 and 1836, *England, Ireland, and America*, and *Russia*. Being a prosperous man by this time he offered himself as a parl. candidate for Stockton at the first general election after Queen Victoria's accession; but it was not until three years later that this constituency sent him to Westminster. He was already a prominent member of the Anti-Corn Law League, which had been founded at Manchester in the autumn of 1838, and was supported by Charles Villiers and John Bright. To obtain the repeal of the laws imposing a duty on the importation of corn was the matter nearest his heart, and it was on this subject that, on Aug. 25, 1841, he made his maiden speech in the House of Commons. How strenuously he devoted himself to his self-imposed task is a matter

of common knowledge, and the arguments he adduced will be found set forth in his *Speeches on Free Trade* (collected in 1903). For years he waged warfare against the protectionists, but at last circumstances aided him. Peel began to be convinced of the necessity of bringing the question of the repeal of the corn laws within the range of practical politics, and during the Irish famine in Oct. 1846 he declared that the only remedy was 'the total and absolute repeal for ever of all duties on all articles of subsistence.' The Cabinet did not agree with this decision, and on Dec. 9 Peel resigned. Lord John Russell, who was for total repeal of the duties, was sent for, and invited C. to take office in his administration, but C. declined, believing that as a private member he could more effectually aid the cause he had at heart. Dissensions between Grey and Palmerston prevented Lord John from forming a ministry, and Peel returned on Dec. 20. In the following month he introduced a repeal Bill, which after much bitter debate in the Commons, received the royal assent on June 26. C.'s object was achieved, and he was hailed as the saviour of the poor. His exertions had, however, left him no time for the conduct of his own affairs, and his business was on the verge of bankruptcy; but ruin was averted, for a grateful nation subscribed £80,000 as a testimonial to him. In 1860 another subscription was started and realised £40,000. Nothing that C. did after the repeal of the corn laws was commensurate in value to his share in securing that measure, but after his prin. object was effected he strove in other directions to further free trade. His next most important achievement was the negotiation of a commercial treaty between France and England, to bring about which he went to Paris in Oct. 1859. He went as a private person, but when he had silenced the objections of the Fr. protectionists he was given official powers, and on Jan. 23, 1860, he and Lord Cowley were the Eng. signatories to the treaty. 'Rare is the privilege of any man,' Gladstone said in the House of Commons, 'who, having fourteen years ago rendered to his country one signal and splendid service, now again within the same brief span of life, decorated neither by rank nor title, bearing no mark to distinguish him from the people whom he serves, has been permitted to perform a great and memorable service to his country.' This public tribute was well deserved, for there is not a more sincere or a less self-seeking man to be found in the annals of Eng. hist. C. d. on April 2, 1865. See Lord Morley, *Life of Richard Cobden*, 1881; J. A. Hobson, *Richard Cobden*, 1918.

Cobet, Carel Gabriel (1813-89), Dutch classical scholar, b. at Paris. In 1846 was made prof. at Leyden, where he remained until his death. His chief works are *Novæ Lectiones* (1858); *Variæ Lectiones* (1873); *Miscellanea Critica* (1876); *Observationes Criticæ* (1877); *Collectanea Critica* (1878); *Briefven aan Geel* (1892).

Cobb (formerly **Queenstown**), port and mkt. tn. in the co. of Cork, Ire. It presents a picturesque appearance, with its houses rising in successive terraces on a steep slope. It was, until 1913, a centre for the Amer. mails, and for the departure of emigrants. Originally called Cove of Cork, it was changed to its later name, Queenstown, in honour of Queen Victoria's visit in 1849. The name was again changed with the advent of de Valera's Fianna Fail Gov. to its present name. The climate is salubrious. Pop. 7000.

Cobham, or **Church Cobham**, vil. in Surrey, England, situated on R. Mole, 6 m. W. of Epsom. Pop. 5000.

Cobham, Lord, see **OLDCASTLE, SIR JOHN**.

Cobham, Sir Alan John, Brit. aviator, b. 1891; son of Frederick C. Educated at Wilson Grammar School. A farm-pupil in 1912; began a commercial career in City of London, 1913. Served in First World War, Aug. 1914 till Jan. 1919—three years in France; commissioned 1917 in the Royal Flying Corps, afterwards R.A.F. In 1920, undertook aerial photographing for the Aircraft Manufacturing Company. Joined the De Havilland Aircraft Company, 1921. Same year began series of long flights; flew 5000 m. round Europe. Another tour, 8000 m., round Europe and N. Africa, in 1922; in June flew from Belgrade to London in a day. Flew 12,000 m. over Europe, N. Africa, and Palestine, in 1923; also London to Brussels with 6 h.p. engine. In 1924 flew from London to Rangoon and back. In 1925-26 flew London to Cape Town and back; in 1926 England to Australia and back; won Britannia Trophy 1923, 1925, and 1926; and in last-named year was made K.B.E. He was commander-pilot of a flying-boat expedition which flew completely round Africa, Nov. 1927 to May 1928.

Cobitis genus of carp-like fishes popularly known as loaches, which are natives of Europe and the E. Indies. The spined loach is a European species found in Britain which makes a peculiar breathing sound.

Coble, low, flat-bottomed boat with a square stern, of one ton burden, 20 ft. in length, and 5 ft. in breadth, rowed with three pairs of oars, and fitted with a lug-sail. It is used chiefly in the cod and turbot fishery. The name is also applied to a smaller boat in use by the salmon fishers.

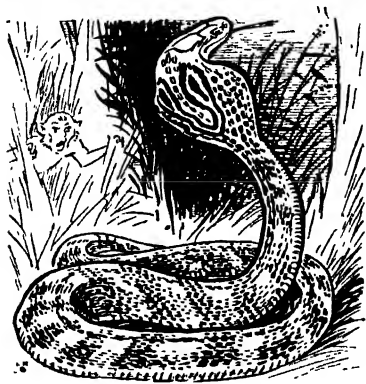
Coblenz, see **KOBLENZ**.

Cob-nut, **Filbert**, and **Hazel-nut**, are all names of the fruits of various species of the cultivated hazel (*Corylus*), the parent form of which is *C. avellana*. The three fruits differ chiefly in the length of the husks or involucre, which in filberts (*q.v.*) are longer than the nuts, about equal in cobs, and less in hazels. The fruits are edible and are largely cultivated as dessert fruits. *C. tuberosa* is the Kentish cob or great cob, also known as Lambert's filbert. It has a large thick-shelled nut, the kernel of which is covered by a reddish coat. Barcelona nut is sometimes

mentioned as a kind of cob or as a variety of Kentish cob.

Coborn, Charles (1852-1945), Brit. music-hall comedian and singer, b. at Mile End, son of a ship agent. His true name was Colin Whitton McCallum and he took his stage name at random from C. Road, Bow. Began his professional career at the Alhambra, Sandgate. In 1877 he played the title role in *The Man in the Moon* at the Theatre Royal. He made a name at Oxford as a coster comedian. His outstanding successes were his songs *The Man who broke the Bank at Monte Carlo*, written and composed by Fred Gilbert, which he sang hundreds of times, and *Two Lovely Black Eyes*. He did much for the comfort of the music-hall profession by forming, in 1885, the Music Hall Artists' Association. Reappeared in 1927 in the 'Veterans of Variety' and, later, in broadcast programmes. In 1928 he pub. a vol. of reminiscences with the title of his Monte Carlo song.

Cobourg, cap. tn. of Northumberland co., Ontario, Canada, 77 m. N.E. of Toronto, and situated on the N. shore of Lake Ontario. It possesses a good harbour, and has woollen mills, foundries, car and carpet manufs. Pop. 6000.



COBRA

Cobra, Portuguese name for sev. poisonous snakes in the colubrine genus (family *Elapidae*) *Naja* common to S. Asia and Africa. The most familiar of these is *N. tripudians*, or *C. da capello*, the hooded snake of India. The colours vary from pale brown to dark grey in some specimens, while others are dark brown and bear spectacle-like black and white markings on the neck, a portion of the body which becomes a hood-like expansion when the creature is roused. In habit the C. is usually nocturnal, and unless attacked is not, as a rule, dangerous; its diet consists of small vertebrates, e.g. rats and frogs; its length may be from 4½ to 6 ft. Although it is terrestrial and conceals itself among stones during the day, it can both swim and climb gracefully and well.

N. haje is the spy-slang or Cape spitting snake and the Egyptian asp (*q.v.*).

Cobra, King, or Giant, see HAMADRYAD.

Coburg, tn. of Upper Franconia, Bavaria, Germany, formerly cap. of the duchy of C., and residence of the duke of Saxe-Coburg alternately with Gotha; situated on the Itz (trib. of R. Main), about 26 m. from Bamberg, 48 m. from Gotha. The Marktplatz contains Theed's statue of Albert the prince consort, the old Rathaus, gov. buildings, and the large arsenal with its fine ducal library. In the Schlossplatz are the ducal palace of Ehrenburg, containing fine paintings and a state banquet hall, the theatre, various churches, and Schwanthaler's statue of Duke Ernst I. On the citadel above the tn. is the old castle and fortress of the dukes of C., recently restored. It was one of the most celebrated structures of the Middle Ages, said to date from the early tenth century. It is now a museum of art and antiquities. Luther took refuge there, 1530; it defied Wallenstein's attacks, 1632. C. manufs. basket-work, thermos flasks, and porcelain, has breweries and a vegetable market. Pop. 30,000.

Coca, see under COCAINE.

Cocaine ($C_{17}H_{19}O_2N$), chief alkaloid found in the leaves of the coca-tree. *Erythroxylon Coca* is a shrub of the order Erythroxylaceae; it attains a height of 6-8 ft., and is met with in many tropical countries, particularly in S. America, where the natives have long been in the habit of chewing the leaves for the stimulating effects produced. When the practice has been long indulged in, the appetite for ordinary food fails, the subject tends to rely on the drug, and eventually collapse occurs. As an occasional tonic, however, coca leaves have considerable value, and are said to enable the Indians to perform remarkable feats of endurance. The properties of the plant were demonstrated in Europe by Christison, and many preparations of value as stimulants have been made with coca leaves extract as an important constituent. Many alkaloids have been found in the leaves, the most important being C. One extract is first made by steeping the coca leaves in hot water. The solution is then treated with lead acetate in order to precipitate tannin, etc., and the lead in the filtrate is precipitated by the addition of sodium sulphate. The solution is then rendered alkaline with soda and the C. extracted with ether and purified by recrystallisation from alcohol. C. forms colourless prisms melting at 98° C. It is soluble with difficulty in water, but forms salts readily. The preparation usually employed in medicine is the hydrochloride ($C_{17}H_{19}O_2N.HCl$), which is readily formed by neutralising the alkaline extract with hydrochloric acid and evaporating the solution to crystallisation. The most important property of C. is its capacity for removing all sensation of pain on local application, and it is used for this purpose in dentistry and other minor surgical operations. Taken by the mouth, it acts first as a stimulant and then as a

narcotic. It resembles caffeine in its effect on the nerve-centres, and atropine in its effect on the respiratory and circulatory organs. The dose for internal use is from $\frac{1}{4}$ to 2 grains. For injection to produce local anaesthesia a 2 - 8 per cent solution of the hydrochloride is employed. C. has been found of great use in eye operations. When applied to the conjunctiva, it dilates the pupil and abolishes pain. For some time after the application there is paralysis of the function of accommodation, so that the patient does not see clearly. For producing local anaesthesia various methods are employed, according to the nature and seat of the operation and the depth of anaesthesia desired. Simple external application to the skin has little effect, but the effect on mucous membrane is to produce a tingling followed by numbness with partial or total loss of sensibility to pain, according to the idiosyncrasy of the subject. There is usually a blanching of the surface, owing probably to constriction of the blood-vessels. Short operations in the nasal passages may be rendered painless by the application of C., also such operations as the removal of tonsils. A deep local anaesthesia can be produced in a superficial part by hypodermic injection. This is not only used for dental and other small operations, but also on occasions when general anaesthesia is dangerous or undesirable. Its use is avoided when possible, as in certain persons it is liable to cause depression of the heart, with possibly fatal results. Another disadvantage of its use is the impossibility of sterilising C. by heat as it decomposes. There is therefore some danger of septic germs being introduced, although a fairly strong solution is not a favourable medium for the growth of micro-organisms. It is true that the distressing symptoms consequent upon the use of ether or chloroform are avoided, but C. is not free from painful after-effects, and sometimes the sensibility of the part is increased when the influence of the drug has passed away. C. is sometimes used to produce spinal analgesia, though it has been largely superseded by stovaine, eucaine, and novocaine. The method employed is the injection of the solution into the sac containing the spinal cord in the lumbar region. The effect produced is insensibility to pain in the lower part of the body. A danger always present in the administration of C. is the possibility of setting up the drug habit. Its employment, for instance, to modify recurrent pains tends to produce a craving for C. which is much more insidiously developed and more difficult to eradicate than the craving for alcohol. The patient simulates pain to procure the drug, even to the point of self-deception. The firm estab. of the habit leads to moral degeneration, sleeplessness, emaciation, and death. The suppression of the improper use of narcotics came within the activities of the League of Nations, before which body much evidence of such usage was

given in Geneva in Jan. 1929. The Brit. delegate, Sir Malcolm Delevingne, presented a report on the activities of a factory in Holland whose illicit operations amounted to 3,350 oz. of C., much of which was consigned to China. Attention was also drawn to the amount of information contained in the It. report on the methods employed in the underworld for the distribution of C. and on the close relations existing between the C. traffic and the white slave traffic. The report also dealt with the ingenuity in concealing their trade of those trafficking in this drug and to the part sometimes played by pharmaceutical chemists in selling it at greatly enhanced prices.

Cocamas, see COCOMAS.

Cocanada, seaport in the Godavari dist., Madras, India, 86 m. S.W. of Vizagapatam; it has exports of cotton, rice, sugar, and cigars. Pop. 53,000.

Coca Wine (*Vinum coxae*), wine used for stimulating effects, and consisting of one part of C. and eight parts of sherry. It is strongly medicated, and must contain half a grain of alkaloid in the ounce, otherwise it is necessary to have a licence before it can be sold. A weaker preparation, containing one in twenty or thirty of a sweet red wine, is sometimes sold by wine merchants.

Coccajo, Merlino, see FOLENGO TROFILO.

Cocceius, Johannes (originally Koeh or Kohen) (1603-69), Dutch Hebraist and theologian. He was one of the leading exponents of the federal or covenant system of theology, an 'important attempt . . . to do justice to the historical development of revelation.' His disciples were known by the name of Coccejans. His chief works were *Summa Doctrinae de Federe et Testamento Dei* (1648); *Lexicon et Commentarius Sermonis Hebraici et Chaldaici Veteris Testamenti* (1669).

Cocceji, Heinrich von (1644-1719), Ger. jurist whose *Juris Publici Prudentia* for a long time remained the text-book of Ger. civil law.

Cocceji, Samuel (1679-1755), son of Heinrich von C. From prof. in Frankfurt-on-Oder, he passed through the various offices, until in 1747 he became the chancellor of Frederick the Great. He wrote *Norum Systema Jurisprudentiae* (1744-52).

Cocoo, Coco, Scratch-coco, Taro, and Eddoes, are all names given to *Colocasia esculenta*, an E. Indian species of Araceae. The C. is often used as a foliage plant; the rhizomes contain a poisonous property, but lose this when they are boiled, and form a nutritious food for the natives.

Coccoliths, or Coccolites, are small, saucer-like disks found in the ooze of the Atlantic, sometimes singly and sometimes aggregated together. It is considered probable that they are the remains of unicellular marine algae.

Coccoloba, genus of Polygonaceae, consists of tropical plants of very handsome appearance, some of which produce edible fruits. There are more than 120 species, restricted to tropical and sub-tropical America. *C. uvifera*, the seaside

grape, is a small tree, the leaves, wood, and bark of which are powerfully astringent owing to the presence of tannin, and a decoction called Jamaica kino is evaporated from them. The wood is valued for cabinet-making and contains a colouring matter used as a dye; the fruit is edible and is sold in W. Indian markets, but is little valued.

Coccosteus, curious genus of fossil fishes characterised by having a spineless tail, while the head and body were covered with large bony tuberculated plates. Some of the species were very large, and good specimens of *C. decipiens* have been found in Scotland.

Cocculus, the dried berry of *Anamirta* (formerly *Menispermum*) *coccula*. *C. indicus* is the commercial name. The berries contain a poisonous active principle known as picrotoxin, about which great care is exercised when it is used medicinally.

Coccus, genus of hemipterous-homopterous insects typical of the family Coccidae, of which the species are called familiarly scale-insects or mealy bugs. The females are wingless, and of a very degenerate type; when adult they fix themselves to a plant by means of their proboscis, and remain there until they produce their young and die. The males, however, are devoid of mouth-parts, and consequently do not live long after fulfilling their one duty, that of fertilising the females. They are unlike their mates in being beautiful and well-developed creatures with anal cerci and a single pair of wings. Some of the coccids are destructive to vegetable life, while others are of value to man. Such are *C. cacti*, (*Dactylopus coccus*) which yields cochineal, and *C.* (or *Gossyparia*) *mannifera* (*C. manniparus*) which exudes the honey-dew supposed to be the manna of the O.T. This latter occurs on the leaves of *Tamarix gallica* var. *mannifer* a. 'Lac' is produced by an Indian coccid (see SHELLAC).

Coccyx, terminal portion at the lower end of the spinal column, consisting of four or five vertebrae.

Cocentaina, in the prov. of Alicante, Spain, 5 m. from Alcoy. It has manufs. of silk, linen, and paper.

Cochabamba, second city of importance in Bolivia, has a pop. of 50,000 at an altitude of 8435 ft. The prov. (pop. about 500,000) of which it is the cap. is sometimes called the granary of the republic. There are large herds of cattle and rich forests. The city is the distributing centre for E. Bolivia, and there is a rich mining region. C has a cathedral, univ., high schools, banks, air lines to Sucre, etc., and a railway to Oruro.

Cochet, Henri, Fr. lawn tennis player; b. 1901, at Lyons. Learned game there on covered courts. Regional champion, and military champion, of France 1921; many other continental victories. In 1927 won men's singles at Wimbledon; in 1928 U.S.A. singles, and doubles at Wimbledon. In 1932 won the all-England plate at Wimbledon, but was defeated by Vines (U.S.A.) in the Davis

Cup final, and again at Wimbledon in singles, 1930-33. Became a professional player in 1933.

Cochin (Tamil *Kaci*, harbour): 1. Dependent state of India within the presidency of Madras, of area over 1300 sq. m. Mostly a low tract of land between the W. Ghats and the sea. Its chief products are cotton, rice, cardamoms, ginger, indigo, coco-nuts, and pepper. Teak abounds, and salt is manufactured on the coast. The cap. is Ernakolam, but the rajah lives at Tripunthura. The chief commercial centre is Mattancheri. Numerous backwaters and coast lakes facilitate internal communication, and a metre-gauge line was constructed (1902) connecting Ernakolam and Shoranur. The pop. consists largely of Hindus and Christians. Many Jews reside in the suburbs, some of them of the black type. Till the ninth century A.D. C. was part of the anct. Chera or Kerala kingdom. The apostle Thomas is said to have gone there, but hist. is obscure till the arrival of the Portuguese. Vasco da Gama reached the Malabar coast in 1498. In 1663 the Dutch drove out the Portuguese; 1776, Hyder Ali of Mysore became suzerain; 1791, Tippoo ceded C. to Britain. Pop. over 1,205,000. 2. Tn. on the Malabar coast, near the entrance to the great lagoon of Travancore, about 95 m. from Calicut. Here Vasco da Gama d. It has an arsenal, a harbour, and shipbuilding yards, and carries on much maritime trade. The first possession of the Portuguese in India, taken from them by the Dutch, 1663, and by the Brit., 1795. It was formally ceded to England, 1814. It is the see of a Catholic bishop and of two Syrian bishops. The people are chiefly Christians, Hindus, and Muslims. Christian and Jewish colonists have existed since the first century A.D., the Christians forming the sect of Nussurani Mappilas. The colony of black Jews claim to have been settled in India in the fourth century. Pop. 25,000.

Cochin China (Fr. or Lower), Fr. possession in S.E. of Asia in the extreme S. of Fr. Indo-China. Also called Gladinh, or Nam-ki (country of the S.). Bounded by Cambodia and Annam, on N., S.E. by S. China Sea, and W. by gulf of Siam. A peninsula in the S., ending in Point Ca-Mau, it separates the China Sea and gulf of Siam. Off the coast are Condor Is. (Pulo Kondor) and Pulo Obi in the China Sea, and the Fu Kwok group in the gulf of Siam. Its area is 26,476 sq. m. C. C. is mostly a broad, low-lying, alluvial plain, including the deltas of the Mekong and Donngai Rs., together with the Salgon R. and the Great and Little Vajeros. The coast region is swampy, and cane-covered marshes stretch far inland. Two canals connect the Bassak arm of the Mekong with the gulf of Siam. The climate is subject to monsoons and is unhealthy for Europeans. Towards the N. there is higher land, mt. summits rising to about 2000 ft. In the W. are the last outliers of the Elephant Mts. of Cambodia. Forests in the N.E. contain valuable

woods for shipbuilding and cabinet-making. The gamboge-tree abounds. There are two railway lines, Saigon to Mytho and Saigon to the frontier of Annam, also a line links Loc Ninh with Ben Dongxo, the terminus of the C. C. tramway; and a complete network of roads, but the rlys. and canals are still more important. C. C. is an agric. country. Rice is the prin. crop, being over 3,000,000 tons a year. Next come areca nuts, betel nuts, coco-nuts, sugarcane, maize, mulberry, cotton, pepper, palm oil, rubber, sweet potatoes, earth-nuts, coffee, oranges, and bananas. Water-buffaloes are much used for labour, also zebus. Among other animals found there are the elephant, rhinoceros, deer, wild boar, tiger, and many smaller animals. Peacocks, snipe, partridges, pheasants, and woodcocks also abound. Minerals are not very abundant, but phosphate of lime is found at Ha-tien, lignite and granite quarries are worked and salt is produced on the coast from lagoons and pits at Saktrang, Bac-leu, and Baria. The large cultivators, especially those owning estates in the W., ruthlessly exploit the tenant-farmers, by reserving for themselves not only most of the benefits, but making further by exactions through loans. The most recent figures show that C. C. is still the leading rice-growing colony of Indo-China, the number of tons produced in 1937 being 3,155,000 as compared with Tonkin, 1,735,000; Annam, 1,032,000; and Cambodia, 960,000. The greater part is used for domestic consumption. There are twenty-seven rice-mills in Cholon, mostly in Chinese hands. Rubber-growing began in C. C. some thirty-eight years ago, and soon spread to Cambodia; present area under *hevea* in C. C. being about 100,000 hectares (Cambodia about 30,000 hectares). Pepper cultivation is carried on on the borders of C. C., but suffers as an export crop from Fr. W. African competition. In 1937 the distilleries of C. C. produced 156,000 hectolitres of alcohol. Three sugar refineries have been set up in Saigon, the combined output being 18,000 tons of sugar, besides rum and alcohol. With Cambodia C. C. is a centre of sericulture in Indo-China. The majority of the pop. are Annamese. There are also Cambodians and Chinese, with a few Moïs, Malays, and Europeans. In religion over a million are Buddhists, and about 75,000 are Rom. Catholics. The Fr. have estab. very many schools, mostly conducted by native teachers. Trade is chiefly in the hands of the Chinese, the main centre being Saigon. Native industries produce jewellery, mats (at Saigon and Rach-Gia (or Rach Gia) especially), pottery, cigarettes (Saigon and Cholon), and soap (Cholon). Storms prevail in May and Aug., while in July, the brief dry season, fever and dysentery are common. The seasons are very regular and harvests good. Irrigation and drainage are carried on energetically in the central and S.W. provs. C. C.'s role as an exporting colony increases: the value of her exports is four-

fold that of Tongking, while both Annam and Cambodia have only an insignificant export trade. The exports include rice, dried fish, pepper, hides, gamboge, areca nuts, copra, cotton, cardamoms, spices, live animals, dyes, isinglass, and silk. For administrative purposes there are four provs. The governor of C. C. is under the orders of the gov. of Indo-China and (before 1941) was assisted by a Privy Council. There was also an elected colonial council consisting of twenty-four Fr. and native members. C. C. was represented in the Fr. Parliament by one deputy. Local affairs are entrusted to native officials. The cap. is Saigon with a pop. of 112,000 (1936) (with Cholon, 300,000 in 1945). Other important places are Cholon, Bienhoa, Long-xuyen, Chau-doc, Bentre, and Tay-ninh. The Khmer kingdom (at its zenith from ninth to twelfth centuries A.D.) included much of modern C. C., the rest being under the empire of Champa (ended in fifteenth century). The Annamese took the E. region in the seventeenth century, and in the eighteenth they occupied the W. also. Hence C. C. was formerly a name for the old kingdom of Annam, extending to the S. of Tongking. About 1861 C. C. came under Fr. rule, becoming a Fr. colony, 1867. In 1887 it united with Cambodia, Annam, and Tongking to form the Indo-Chinese Union. From the capitulation of Japan in 1945 Brit. troops landed in C. C. to disarm the Jap. and keep order. The Fr. authorities acknowledged their debt of gratitude to the Brit. for the loyalty with which they carried out their mission until the arrival of Fr. troops under Gen. Leclerc. The Brit. occupying authorities well understood the necessity of close co-operation between the colonial powers in face of the cleverly conducted propaganda against colonial empires. The control of Leclerc's troops was methodically extended, and all centres of resistance gradually overcome. On March 6, 1946, a preliminary agreement was concluded between Fr. representatives and those of the revolutionary party Viet-Namh, by which the latter was to become a free republic of the Fr. union. The eventual reunion of C. C., Annam, and Tongking was foreshadowed, and proposals made to sound popular opinion through the machinery of a referendum. In 1947 a republican form of gov. was instituted in C. C. Pop. (1936) 4,616,000. For bibliography see INDO-CHINA, FRENCH.

Cochineal, natural dyo-stuff employed in dyeing scarlet, crimson, and orange, and in the preparation of the pigments lake and carmine. It consists of the bodies of the female insects of the *Coccus cacti* (family Coccidae, order Hemiptera), so called because the chief food of the species is a variety of cactus, particularly the nopal, found in Mexico and Peru. It is now also cultivated in Algiers, Spain, etc. The insects are collected from the plants into bags, and killed either in an oven or by exposure to the sun or steam. Different kinds of treatment produce the various varieties of C., the

best being known as silver, the next as black, and an inferior quality as granilla. The use of C. reached Europe from Mexico in the sixteenth century.

Cochläus, Johannes (properly Dobneck) (1479-1552), Rom. Catholic controversialist and writer, b. at Wendelstein. He sat on the Rom. Catholic side in the first commission at Augsburg, and at the Regensburg Colloquy in 1546. His best known work is *Commentaria de Actis et Scriptis Lutheri* (1549; Ger. ed. 1580 and 1582). His *Kleine Schriften* were ed. by J. Schweizer in 1920. Other works are *De Matrimonio Regis Angliæ* (1535); *Scopa in Araneas Ricardi Morysini Angli* (1538) (both written strongly against the marriage of Henry VIII. of England with Anne Boleyn); and *Historia Hussitarum* (1549). His life has been written by Spahn, 1898.

Cochlea, see E.A.R.

Cochlearia, genus of cruciferous plants, growing wild in Europe and Asia Minor. *Armoracia lapathifolia*, the horse-radish, grows in Britain, but is not in reality a native, the wild specimens being evidently escapes from gardens; the root is a well-known condiment. *C. officinalis*, the scurvy-grass, is a native of Britain found in muddy places near the sea-coast; the fresh plant is a stimulant and possesses antiscorbutic properties.

Cochran, Sir Charles Blake (b. 1875), Eng. theatrical manager, b. at Lindfield, Sussex. Educated at Brighton, where he was influenced towards the theatre by Aubrey Beardsley. In America he acted from 1890 to 1893. In 1897 he produced *John Gabriel Borkman*. His first London production was *Sporting Simpson*, at the Royalty Theatre in 1902. He has produced more than 100 shows of all kinds. Made a big success with *The Miracle at Olympia*. Has won fame also as a promoter of large-scale entertainments of all kinds—including boxing and wrestling matches. It was C. who introduced Hackenschmidt. Pub. *The Secrets of a Showman* (1925); *Cock-a-doodle-do* (1941); and *1 Showman Looks On* (1945).

Cochrane, Sir Alexander Forrester Inglis (1758-1832), Eng. admiral who took part in the actions off Martinique in the *Montague*, 1780. In 1795 he seized two large Fr. store ships out of a squadron of five. In Lord Keith's expedition to Egypt in 1801 he commanded the *Ajar*, and in 1806 he took a prominent part in the battle off San Domingo, being second in command under Duckworth. He was uncle of the celebrated Adm. Thomas (Lord) C., earl of Dundonald, and father of Adm. Sir Thomas John C.

Cochrane, Douglas Mackinnon Baillie Hamilton, twelfth Earl of Dundonald (1852-1935). Brit. soldier. He entered the 2nd Life Guards in 1870; served in the Nile expedition from 1884 to 1885, and in Stewart's march to the relief of Khartoum, and fought at the battles of Abuklea and Goubat. In the Boer war he was present at the battle of Colenso, and at the head of the 2nd Cavalry Brigade was the first to enter Ladysmith at the raising of the siege by Sir Redvers Buller

(Feb. 28, 1900). Commander of the Brit. forces in Canada, 1902-4, but recalled by the secretary of state for war in consequence of his public criticism of one of the ministers.

Cochrane, Robert, Earl of Mar (d. 1482), Scottish architect, and a favourite of King James III. He is supposed by some to have been associated in the building of Parliament House at Stirling. After his accession to the earldom, probably about 1479, he was seized by the order of Lord Angus and other nobles, and hanged over Lauder bridge.

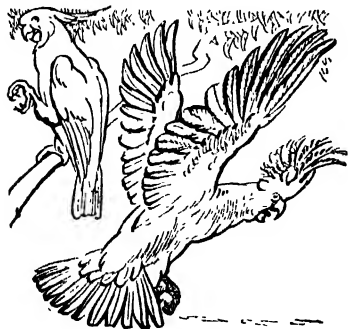
Cochrane, Thomas, tenth Earl of Dundonald (1775-1860), began his career in the navy when about eighteen years old, and in 1801, when he held the post of commander of the *Speedy*, distinguished himself in the service. Some years later he was elected member for Westminster, and endeavoured in that capacity to reform the Admiralty. He saw a good deal of service against France, but at Aix roads in 1809, he was not successful in his attempt to bring about the destruction of the Fr. fleet, and although the fault was the caution of C.'s admiral, C. had to bear the blame. In 1914 he suffered expulsion from the navy on a false charge of fraud, was expelled from Parliament, and was imprisoned. He escaped, and was re-elected for Westminster. He was, however, recaptured, and had to serve one year's imprisonment. He entered the service of Chile and commanded that country's navy during the war of Liberation, winning sev. fights. After this he did brilliant service in defence of the independence of Brazil (1823-25), and in 1827-28 was in the service of Greece. By the year 1832 he had managed to regain his position in the Eng. Navy, being made an admiral. He also served as commander-in-chief in the N. Amer. and W. Indies station, 1848. It was under C. (then a captain) that Marryat in 1806, started on his first voyage in H.M.S. *Impérieuse* for the Mediterranean (see autobiographical incidents in Marryat's *Frank Milnamay*) 'Capt. Savage' in *Peter Simple* is generally conceded to be meant for Capt. C., of the *Impérieuse*. C.'s *Autobiography* contains a hist. of the *Impérieuse*. He wrote *The Autobiography of a Seaman*, 1860-61. See life by his son; and J. B. Atlay, *The Trial of Lord Cochrane before Lord Ellenborough*, 1897; C. Lloyd, *Lord Cochrane*, 1947.

Cochrane, Sir Thomas John (1789-1872), Eng. admiral, son of Adm. Sir A. F. I. C. While commanding the *Surprise*, 1813, he captured the *Decatur*, an Amer. privateer, afterwards assisting in the attacks on Washington and Baltimore.

Cock, Edward (1805-92), Brit. surgeon, who was apprenticed at the age of sixteen to his uncle, Sir Astley Cooper, at St. Thomas's Hospital. On the estab. of Guy's Hospital he was appointed the demonstrator of anatomy. He was consulting surgeon there in 1871. He was probably the first who performed the operation of oesophagotomy. His chief work was *Practical Anatomy of the Head, Neck, and Chest* (1835).

Cockade, modern substitute for the badge worn in olden days on the dress or appointments of the servants of the house. Custom is the only authority for its use, and excepting casual references in the description of military accoutrements, no official recognition of the C. occurs. Probably the earliest Cs. known were those which were worn in Scotland for William of Orange at the time of the revolution. The white C. was that worn by the Jacobites, while a black one was used by the house of Hanover and by the household of the estab. gov. From the hats of the military it passed on to those of the civil servants of the Crown, and as headgear changed in fashion, the use of the C. became confined to servants only. Hence the custom of generations was estab. by which the use of the C. is confined to the servants of those who bear commissions from the Crown or its delegates, i.e. justices of the peace, who receive commissions from the lord-lieutenant of the co.

Cockaigne, Land of (O.F. *coquaigne*, modern Fr. *cocagne*, coming through It. *cocagna* and Lat. *coquere* to cook, and perhaps lit. rally, meaning land of cakes), imaginary land familiar in medieval romances, in which it was possible to live a luxurious life of perfect idleness. All the features of the landscape were good to eat or drink; the rivs. were of wine, the houses of cakes and sweetmeats, and the streets of pastry, while roasted geese and fowls and buttered larks went about asking to be eaten. There is a thirteenth-century Eng. poem, *The Land of Cockayne*, which ridicules monastic life. The term has been applied to London in its aspect to the rustic of the city with streets paved with gold, and this has probably led to its frequent confusion with cockney.



COCKATOO

Cockatoo, bird belonging to the family Psittacidae, of the sub-order Psittaci, of the order of the Cuculiformes. They are closely related to the true parrots, with which they are commonly considered. True Cs. are light in colour, generally white with tinges of red and orange.

They are found in Australasia and the E. Indian Is. The term is often extended to include allied genera of dark plumage, such as the black C. In heraldry a C. is a beast with head, shoulders, and legs of a cock, and the body, wings, and tail of a wyvern.

Cockatrice, fabulous monster believed in in auct. and medieval times (see Pliny, *Natural History*, and Aldrovandus, seventeenth century), said to come from a cock's egg hatched by a serpent and to possess deadly powers, being able to wither plants (except rue) and to kill men and animals (except the weasel) by its glance. The cock's crow killed it—hence travellers took the bird with them as a protection. In the Bible C. merely means a very venomous reptile. It is sometimes identified with the basilisk.

Cockburn, Sir Alexander James Edmund (1802-80), lord chief justice of England. Came of auct. Scottish stock; son of Alexander C. of the diplomatic service. He was educated at Trinity Hall, Cambridge; became a barrister in the Middle Temple, 1829; recorder of Southampton, 1840-46; Q.C., 1841; M.P. for Southampton, 1847-56; solicitor-general, 1850. His opening speech in the prosecution of Palmer in the celebrated Rugeley murder case in 1856 is famous as a forensic model of its kind. C. defended (1843) the crazy Scotsman, McNaughten, who shot Sir Robert Peel's secretary, Drummond, and estab. the defence of insanity, initiating the general rule (see McNAUGHTEN'S CASE). Briefed against Attorney-General, Thesiger, in the case of R. v. Newman (later Cardinal Newman), a libel prosecution launched against Newman who had denounced a profligate Rom. Catholic friar named Achilli, who was lecturing on Rom. Catholicism in England. The verdict against Newman was set aside. C. was knighted in 1850; in 1851 he was made attorney-general; recorder of Bristol, 1851-56; and became lord chief justice of court of common pleas in 1856, of court of queen's bench in 1859, and of England in 1874. C. was presiding judge in the Tichborne trial and an arbitrator in the Alabama dispute. A man of brilliant abilities and of high reputation as a judge. See *The Greville Memoirs*; J. McCarthy, *History of Our Own Times*; and S. Ballantine, *Experiences*.

Cockburn, Mrs. Alicia, or Alison (c. 1712-94), writer of Scottish songs, b. at Fairlie, Selkirkshire, her maiden name being Rutherford. In 1731 she married Patrick C., an advocate, the son of Adam C., lord justice-clerk, and the brother of C. of Ormiston, the father of Scottish agriculture. She became a famous Edinburgh hostess, being noted for her wit, sprightliness, and conversational powers, and numbered among her intimate friends Scott (to whom she was distantly related), David Hume, John Home, and Lord Monboddo. She had considerable poetical abilities, and is best known for her version of *The Flowers of the Forest*, which first appeared in *The Lark* in 1765. Other songs by her appear in Johnson's *Musical*

Museum, 1853. See her *Letters and Memoirs*, ed. by T. Craig Brown, 1900.

Cockburn, Catharine (née Trotter) (1679-1749). Eng. miscellaneous writer, whose works include *Verse on Congreve's 'Mourning Bride'* (1697); three tragedies: *Agnes de Castro* (1696), *Fatal Friendship* (1698), and *The Unhappy Penitent* (1701); *Love at a Loss* (1701), a comedy. His writings in defence of Locke and other philosophical works.

Cockburn, Sir George (1772-1853), Brit. admiral who served under Nelson with the frigate *Minerve* during 1796-1802. From 1803 to 1805 he commanded the *Phaeton* in the E. Indies; and in 1813 took an important part in the capture of Washington; in 1815 became commander-in-chief at St. Helena, having conveyed Napoleon there from Plymouth.

Cockburn, Henry Thomas, Lord (1779-1854), Scottish jurist and judge, b. near Edinburgh, the son of Archibald C., a baron of the Scottish court of exchequer. In 1831 he became lord rector of the univ. of Glasgow, and in 1834 was promoted to the bench as one of the lords of the court of session, under the title of Lord C. He was appointed a lord commissioner of judiciary in 1837. He pub. *A Life of Lord Jeffrey* (1852), while *Memorials of his Time*, a book full of humour and interest, was pub. posthumously in 1856.

Cockburn, Sir John Alexander (1850-1929), Anglo-Australian statesman, b. at Corsbie, near Duns, Scotland; in 1875 he settled in S. Australia, and in 1884 was elected to the House of Assembly as representative for Burra, and in 1887 for Mt. Barker. He was minister of education, 1885-87; Premier and chief secretary, 1889-90; chief secretary, 1892; minister of education and agriculture, 1893-98. Made K.C.M.G. in 1900. He represented S. Australia at the Federal conferences and at numerous international congresses, and wrote *Australian Federation* (1901).

Cockchafer, or *Melolontha vulgaris*, lamellicorn coleopterous insect in the family Scarabaeidae and section Melolonthidae. The larvae are found in dung or in decaying vegetable matter or buried in the ground. The beetle is of a brownish colour, is over an inch in length, and is destructive to crops. When in flight it emits a loud whirring sound. Its life is short, but the larval stage is of very long duration, lasting from three to five years, most of which time is spent at some depth below the soil. The C. is common to continental Europe, but is not so frequently found in England.

Cockcroft, Sir John Douglas (b. 1897), Brit. physicist, formerly Jacksonian prof. of natural philosophy at Cambridge, and since 1946 director of the Atomic Energy Research Estab. of the Ministry of Supply. Working under Rutherford at Cambridge he constructed (with Walton) apparatus for accelerating atomic nuclei to very high speeds, and with this was able to produce the first examples of completely artificial transmutation (i.e. the conversion of nuclei of one element to those of a different kind).

Rutherford had previously shown that such transformations sometimes occurred when alpha particles from radioactive material collided with atoms, but prior to C.'s experiments no nuclei had been artificially accelerated to speeds sufficient to produce similar changes.

Cockenzie and Port Seton, fishing port on N.W. coast of E. Lothian, Scotland, on the firth of Forth, 1 m. E. of Prestonpans, which is its station, and 4 m. N.E. of Musselburgh. The two vills. now form one small port. Pop. 2800.

Cocker, Edward (1631-76), Eng. engraver and teacher. His famous *Cocker's Arithmetic*, pub. posthumously by John Hawkins, 1678 (confined to commercial questions only), was popular for nearly a century. More than 100 eds. were sold. 'According to Cocker' became a proverbial phrase. 'Daniel's Copy-book engraven by Edward Cocker, Philomath, 1684,' is preserved in the Brit. Museum. Other works were *A Guide to Penmanship*, *Tutor to Arithmetic*, and *Complete Arithmetician*. See *Pepys's Diary*, Aug. 10, 11, 1664, and A. De Morgan's *Arithmetical Books from the Invention of Printing to the Present Time*, 1847.

Cockerell, Charles Robert (1788-1836), Eng. architect. He assisted in the excavation of the Æginetan and Phigalian marbles. In 1819 he became surveyor to St. Paul's; and from 1840 to 1857 was prof. of architecture at the Royal Academy. Among his best-known works are the Taylor buildings at Oxford, 1841-42.

Cockerell, Sir Sydney Carlyle (b. 1867), Brit. paleographer, educated at St. Paul's school. From 1889-92 was a coal merchant. Secretary to Wm. Morris and the Kelmscott Press, 1892-98 (see on this MORRIS, WILLIAM). Director of the Fitzwilliam Museum (q.v.) 1908-37. Fellow of Jesus College, Cambridge 1910-16, of Downing College, 1932-37. A literary executor of Wm. Morris, Wilfrid Scawon Blunt, and Thomas Hardy. Has written various bibliographical monographs, especially on illuminated MSS.

Cockermouth, Eng. tn. In Cumberland, at confluence of Derwent and Cocker Rs., 25 m. from Carlisle. Wordsworth's bp., 1770. Bordering on the Lake Dist. There are coal mines near; flax and woollen mills; it manufs. hats, hosiery, and paper, also thread for art needlework. There are interesting ruins of an old castle built about the eleventh century, destroyed by the Parliamentarians, 1648. There are also Rom. remains near by. Pop. 5000.

Cocker Spaniel, small breed of dog, believed to be of Sp. origin; reared for work with the gun, especially for woodcock shooting. It has a soft, wavy coat, black, red, or cream; short legs, square muzzle, and long, low-set ears. See also under SPANIEL.

Cock-fighting, anct. and widely practised sport, consisting of the pitting against each other for fighting of specially bred and trained game-cocks. It appears to have been known in India, China, and Persia, and was introduced into Greece

from the E. during the time of Themistocles. From here it spread to Asia Minor, Sicily, and Rome, and from Rome northward and westwards over the greater part of Europe. In most European countries it is now illegal, but it is still practised in Spain, and is popular in Sp. S. America, China, Siam, and the Malay Peninsula. It was probably introduced to England at a very early date by the Romans, but our first definite knowledge of it comes from a description by Wm. FitzStephen, in the reign of Henry II., of the cock-fights at schools on Shrove Tuesday. It reached its highest popularity in the time of Edward III., and though it was prohibited, on account of the gambling it entailed, about 1366, it continued to be a favorite sport for many centuries. Henry VIII. built the famous royal cockpit at Whitehall, and the pastime was known as the royal diversion during the time of the Stuarts. James I. and Charles II. were enthusiastic devotees, the former being said to have attended at least two fights a week. C. was rigorously opposed by the Puritans, and Cromwell managed to suppress it entirely for a short time. It was finally abolished by law in 1849, but is still carried on more or less clandestinely. The sport was introduced into Scotland about 1881, and here partridges were frequently used instead of cocks, while in Wales a special form of combat, known as the Welsh main, was evolved. The cock-pits were usually circular, about 20 ft. in diameter, consisting of a stage covered with matting and surrounded by a barrier round which the audience stood. Almost every tn. in the kingdom had one, the larger prov. cities three or four each, and London a considerable number, of which the best known were in Westminster, Drury Lane, Jewin Street, Bridge Walk, Pall Mall, the Haymarket, and Covent Garden. The usual form of combat was that in which an agreed number of pairs of birds fought together, the final result being decided by the majority of victories on one side or the other. In the Welsh main, on the other hand, eight pairs fought, and the eight victors were paired and fought again, and so on till only one bird was left alive. There was also the battle royal, in which a certain number of birds were set upon each other and left to fight till all but one were killed. The game fowl is probably the nearest modern variety to the original Indian jungle-fowl. A cock is fought when one or two years old, and is trained by diet and exercise for about a month previously. The wings, tail, hackle, rump, and comb are all carefully trimmed, and spurs, from 1 to 2½ in. long, attached to the heels.

Cockie-lecky, or **Cooky-lecky**, soup, common in Scotland and the N. of England, made from a fowl boiled with leeks.

Cock Lane Ghost, imposture which greatly agitated London about 1762. A house in Cock Lane, Smithfield, tenanted by a man named Parsons, was said to be visited by mysterious noises

and by the apparition of a Mrs. Kent, who had d. there two years before. Inquiry revealed that the visitation was the work of Parsons's little daughter, aged eleven, and was a scheme on the part of Parsons to blackmail Kent by making it appear that he had murdered his wife. Parsons was condemned to stand in the pillory three times and to two years' imprisonment. The house was visited by large crowds, among them being Dr. Johnson.

Cockle, popular name of members of the Cardidae, a family of eulamellibranchiate molluscs. The species are widely distributed in many seas, especially those of the tropics. The shells are strong, heart-shaped, and ribbed, and the foot is long and bent. By means of this foot the C. burrow in mud and sand and also leap over the sand for a short distance. *Cardium edule* is the edible C. familiarly known in Britain as an article of diet.

Cockney, contemptuous term applied to a Londoner, strictly speaking to one born within the sound of the bells of Bow church. Various more or less fanciful etymologies of the word have been suggested, but there is little doubt that that given by Dr. Murray of 'cocken-ey' = 'cock's egg,' which came to mean a child overlong nursed, and so a milksoop, is the correct one. The term seems to have been first used of Londoners in particular in the seventeenth century.

Cook of the Rock, or *Rupicola*, genus of S. Amer. passeriform birds, the males of which are very handsome, with a purple-crested head and general orange colour, and have the curious characteristic of performing a strange dance before an assembly of their species. The hen bird is dull-coloured, and does not partake of her mate's antics.

Cook of the Wood, see CAPERCAILLIE.

Cookpen, par. 2½ m. S. of Dalkeith. Dalhousie Castle, formerly the residence of the marquess of Dalhousie, governor-general of India 1847-56, is now a school for boys. The grounds include those of the Laird o' C. of Scottish song. Pop. 5700.

Cook-penny, payment formerly made by the scholars of certain schools, especially in the N. of England, to their master at Shrovetide. It was originally intended to defray the expenses of cock-fighting, a regular institution at the schools.

Cockpit, originally the enclosed space devoted to the sport of cock-fighting. The site of an old C. opposite Whitehall was used for the erection of a block of buildings used by the Treasury and Privy Council, and the name survived until the nineteenth century. The name was also given to a theatre built in the early seventeenth century on the site where the present Drury Lane Theatre now stands. The C. was also the place in the old sailing men-of-war where the wounded were attended to during action, and was situated near the after-hatchway under the lower gun-deck.

Cockroach, term employed in speaking of either the whole family of orthopterous

insects known as Blattidae, or of certain members only of the family. The species are very widely distributed, and the Brit. black-beetle is a true 'C.', bearing little resemblance to a beetle. Some of the species are wingless, but usually the male has two well-developed pairs of wings—a stiff front pair called the *tegmina*, and a membranous hind pair—and the female bears rudimentary structures to represent each pair. In habit the insects are omnivorous and nocturnal. The female has a broader abdomen than the male, and her eggs are laid in hard capsules. *Phyllodromia germanica*, the croton bug of America, is common also in Europe, and is a representative species of 'C.'; *Blatta* (or *Periplaneta*) *orientalis* is the pest of Brit. kitchens. (*Periplaneta* is also the generic name given by some entomologists to a flying species, *P. americana*, and to the Australian *C.*, *P. australasie*. See L. C. Miall and A. Denny *The Structure and Life-history of the Cockroach*, 1886.

Cockscomb, see CELOSIA.

Cock's-foot Grass, pasture grass of Europe, Asia, and N. Africa, valued chiefly as a food for sheep very early in the spring before its young leaves have had time to become tough.

Cockton, Henry (1807-53), Eng. novelist, b. in London. Only remembered for two of a number of novels: *The Life and Adventures of Valentine Vox, the Ventriloquist* (1840); and *Sylvester Sound the Somnambulist* (1844).

Cocles, Horatius, see HORATIUS COCLES.

Coco (plant), see COCCO.

Coco, riv. of Nicaragua. Central America, known also as Wanks, Segovia, Yoro, Herbias, and Telpanesa. It rises in the N.W. in the dept. of Segovia, and forms part of the boundary between Nicaragua and Honduras, flowing into the Caribbean Sea at Cape Gracias-à-Dios. It is navigable for about 150 m., but large vessels cannot pass the sand-bar at the mouth.

Coco (or Cuoco), Vincent (1770-1823), It. politician and man of letters, was made member of the Royal Council by Joseph Bonaparte after the battle of Marengo. His best known works are *Platone in Italia*, which may be described as a philosophical novel, and *Revoluzioni di Napoli*.

Cocoa and Chocolate are derived from the cocoa bean, fruit of the tree *Theobroma Cacao*, member of the family Sterculiaceae, related to mallows and linden. Two other species have some commercial importance: *T. pentagona* and *T. sphaerocarpa*. Originally wild in Central America; now cultivated in tropical belt 20° N. and S. of equator, requiring mean shade temp. 80° F. with only occasional variations of 15° above or below, and rainfall of at least 50 in. per annum, without marked seasonal fluctuations. The prin. producing countries are Africa (Gold Coast, Nigeria, Fr. and Portuguese W. Africa); America (Brazil, Venezuela, Ecuador, etc.); San Domingo, Trinidad, and other W. Indian is.; also Ceylon, Java, and New Guinea. The possibility of commercial

production in Malaya, Brit. Guiana, etc., is being explored.

The tree is 15-25 ft. high, with broad-leaved luxuriant foliage. Flowers are small, pale pink, pale yellow, wax-like texture; the fruit produced in pods; buds, flowers, and fruit at all stages of development are present simultaneously; pods grow on main trunk and branches. A tree produces 6000 flowers, but only ten to sixty mature. Pods differ in size (6 to 10 in.), shape (gherkin or lemon to melon) and colour (yellow, maroon, crimson-purple). There are two main varieties: *Criollo* (lemon-shaped, broad at stalk end,



Cadbury Brothers Ltd.

A WEST AFRICAN COCOA FARMER HARVESTING HIS CROP

skin soft and furrowed) and *Forastero* (smoother and harder with great variety of shapes). The pod contains twenty to forty seeds ('beans') in white pulp, sweet and faintly acid to first taste but bitter and astringent on biting. *Criollo* seeds are large, plump, and white; *Forastero* smaller, flatter, and heliotrope; some trees yield both colours. The yield varies, but the typical 1-lb. pod produces 4-oz. seeds = 1½ oz. commercial cured bean. Yield higher in Brit. W. Africa, but average yield of dried cocoa in all growing countries probably 2 lb. per tree (= 1 lb. commercial cocoa powder) or less. *Criollo* gives good quality and moderate yield, *Forastero* medium quality and high yield.

Cultivation, Harvesting, and Marketing.—In S. America and the W. Indies cultivation is on plantations, in W. Africa on small native-owned farms. Trees are protected from wind by other plantings and usually from sun, but practice varies; they can be intermingled with 'catch

crops,' e.g. yams. The tree bears at four to five years, reaches maturity at ten to fifteen years, and continues for thirty to forty years. Ripe pods are present throughout the year, but there are usually two harvests. The pods are separated from tree by cutlass (machete) or hooked knife on a long pole (goulet). The pods are then cut open, and the beans and pulp scooped out: these are placed in heaps on ground and covered with leaves, or in 'sweating boxes'; the pulp ferments and drains away. This process matures the beans and changes the interior to chocolate brown. This is necessary in order to produce beans of suitable quality. The beans are then dried, preferably in the sun. Brit. W. African cocoa is (1949) marketed by Gold Coast and Nigerian Cocoa Marketing Boards, the share allocated to Britain by the International Emergency Food Committee being purchased by Ministry of Food and reallocated to manufacturers. Consumers' representatives still act as buying agents.

World Production, Consumption, and Price.—The most remarkable feature of world production is the enormous growth of the industry in the Gold Coast, to which cocoa was introduced about 1879. The export in 1890 was a mere 80 lb., while to-day, with Nigeria, Gold Coast produces more than half the world yield, and nearly double the whole world production of 1909. In 1939 world production reached a peak of over 700,000 metric tons, of which Brit. W. Africa accounted for nearly 400,000 tons. In the same year world consumption nearly equalled production, U.S.A. taking nearly 300,000 tons and the United Kingdom over 100,000 tons. Production of course decreased in countries affected by war, e.g. the Gold Coast, where labour was diverted to military service, and other countries reduced production through dislocation of markets. In the crop year ended Sept. 1948 the International Emergency Food Committee allocated world production of 599,000 tons (including 284,000 tons from Brit. W. Africa) to consuming countries. U.S.A. received 278,000 tons and United Kingdom 103,000 tons. Gold Coast production has also been affected by 'swollen shoot' and other diseases. Favourable weather, however, gave an excellent yield in 1948-49. The price paid by Brit. manufacturers for cocoa beans reached its lowest level, 32s. 6d. per cwt., in 1933. In 1938 it was 41s. 8d. After that prices were controlled. They rose to 62s. 8d. in 1946 and to 237s. 2d. in 1948. In U.S.A. prices reached a peak of 46 cents a lb. (255s. per cwt.) in Nov. 1947. The great increase in price after the war was largely due to removal of 'ceilings' by U.S.A., in conjunction with high world demand. By 1949 there was considerable recession in prices.

Manufacture.—The initial processes in manuf. of drinking cocoa (powder) and chocolate for eating and drinking are the same. Mechanical sieves and magnetic separators remove foreign bodies from beans, which are roasted in revolving

drums heated by coke fires, gas jets, or super-heated steam. This brings out the aroma and facilitates breaking of bean into small pieces ('nib') and winnowing away of shell. Blending takes place at this stage. The nib is then ground. Owing to the high fat ('cocoa butter') content (56 per cent), grinding produces a viscous brown liquid, as fat is melted by heat generated. When cool the liquid solidifies. Hydraulic presses, exerting pressure up to 6000 lb. per sq. in., extract a fixed proportion of cocoa butter, which is refined for chocolate manuf. and other purposes. Cocoa remains as dry hard cakes, which are broken up, ground and reground to powder, and sifted through silk for drinking cocoa. In a modern factory all stages of production, including tin-making, are embodied in a series of 'linked processes' involving automatic and semi-automatic machinery, gravity being largely used for conveyance of material.

Eating Chocolate.—While cocoa powder consists of bean *minus* some of its cocoa butter, chocolate contains full butter content of bean *plus* extra cocoa butter added to compensate for increased bulk due to inclusion of sugar. Eating chocolate is of two main kinds: moulded and couverture (or confectionery). Couverture for covering fruits, nuts, biscuits, preserves, and other 'centres' needs a higher proportion of butter than chocolate for moulding into blocks. Balance in production of cocoa and chocolate is therefore important to the manufacturer. He does not want to buy cocoa butter nor, generally speaking, to produce a surplus, though there is a market for this in manuf. of other confectionery and of cosmetics and other pharmaceutical preparations. In chocolate manuf. finely powdered sugar, extra cocoa butter, and cocoa 'mass' are mixed and ground in a *mélangeur*, in which heavy granite rollers rotate on a revolving granite bed. The material is kept warm enough to be plastic and is delivered to a series of refining machines. The first consists of rolls revolving at different speeds and delivers the chocolate in dry, flaky condition. Another process is *conching* (so called from shape of machine: *Fr. conche*, a shell) in which semi-liquid mixture is mechanically kneaded for long periods. For confectionery chocolate a fluid product is required. 'Centres' pass on a moving wire mesh under a curtain of chocolate. Decoration is added with a fork or other implement. Hand-covering is also practised, centres being dipped into bowls of liquid chocolate with a decorating fork. Moulded chocolate is less liquid. It is run into moulds, shaken mechanically, and knocked out (in form of blocks, bars, sticks, etc.) when cool and set hard. Fruit (e.g. raisins) and nuts (whole or chopped) can be mixed in before moulding.

Milk Chocolate is made with dried powdered milk or with fresh liquid milk. In the latter case, partially evaporated milk is mixed with chocolate mass and sugar. Factories for this purpose have been estab. in dairy dists., and the

partially finished product ('crumb') is sent to the parent factory for the final stages of manuf.

By-products.—Apart from cocoa butter, by-products of the industry are cocoa shell, a constituent of some cattle foods, and the drug, theobromine, a useful stimulant.

Constituents and Food Value.—Cocoa nib consists typically of 55–56 per cent fats, 25 per cent carbohydrates, 12 per cent proteins, and the balance of salts, iron, etc., yielding 2975 calories per lb. A good brand of plain eating chocolate is composed of 32 per cent fat, 60 per cent carbohydrates, and 5 per cent proteins (= 2500 Calories per lb.); milk chocolate made with fresh milk of 37 per cent fat, 54 per cent carbohydrates, and 9 per cent proteins (= 2600 Calories per lb.), while cocoa powder has about 28 per cent fat, 34 per cent carbohydrates, 13 per cent proteins, and 20 per cent other constituents (= 2100 Calories per lb.).

Consumption.—Pre-war consumption (estimated) in the United Kingdom of chocolate and sugar confectionery was 7.1 oz. (representing 5.3 pence) per head per week, of which 3.2 oz. (2.9 pence) was chocolate. When the United Kingdom was consuming over 70z. per week, consumption in U.S.A. was 4½ oz. When, under rationing, consumption in the United Kingdom was reduced to 3 oz., U.S.A. reached peak consumption of 6.3 oz. (1944). The total consumer value in the United Kingdom in 1939 was about £54,000,000, of which about one-third represented ingredients, one-third manufacturing costs and one-third, cost of distribution. In 1943 ingredient costs represented about half of value.

Employment.—Between 1900 and 1939 the industry was largely mechanised, output being more than doubled while employment increased by one-fifth. In 1939 82,300 (26,400 men and 55,900 women) were employed, but rationing and other disturbances of economic conditions reduced total number to 35,600 in 1943.

History.—Cocoa beans were first brought to Europe in 1494 by Columbus, but he did not realise their value. Cortez, who conquered Mexico in 1519, noted the use which the Aztecs of Mexico made of cocoa beans and he introduced chocolate as a beverage into Spain. Cortez found that the Aztecs, believing that it was a gift to man from the gods, consumed large quantities of a preparation made from the roasted and ground bean called *chocolatl*. Montezuma, the Aztec emperor, and his court were said to use fifty jars a day. It was beaten to a paste, flavoured with spices and taken cold. For a century Spain kept secret the recipe for chocolate, but France learned it and knowledge of chocolate spread thence to other countries. In 1657 a Frenchman opened a 'chocolate house' in Bishopsgate, London. During the latter half of the seventeenth century chocolate houses sprang up all over London and became resort of politicians, wits, gamblers, and literati. At one, White's in St. James's Street, a centre for reckless gambling, was founded the first club

(see CLUBS). High import duties were imposed on cocoa beans. It was not till 1853 that, by imposition of a uniform penny a pound on imported colonial and foreign beans, price was brought within reach of less well-to-do. Factory production in England was started by Fry's in 1728. When chocolate as a sweetmeat was introduced is not certainly known, but as late as 1842 a leading Eng. manufacturer listed only one 'line' of eating chocolate. Modern drinking cocoa was invented about 1823 by van Houten, the Dutch maker, who expressed part of cocoa butter, but it was not until the 1860's that it was introduced into England by Cadbury's. Hitherto cocoa had been mixed with farinaceous substances in order to counter-balance high fat content. The new process of making cocoa by creating a supply of cocoa butter enabled more palatable eating chocolate to be made. Sir Hans Sloane prepared a milk chocolate for drinking in the late eighteenth century. Peter, the Swiss maker, introduced milk chocolate for eating in 1876.

See P. Zipperer, *The Manufacture of Chocolate and other Cacao Preparations*, 1915; A. W. Knapp, *Cocoa and Chocolate: their History from Plantation to Consumer* (with bibliography), 1920; *The Cocoa and Chocolate Industry: the Tree; the Bean; the Beverage*, 1930, and *Cacao Fermentation* (London), 1938; R. Whympere, *Cocoa and Chocolate—their Chemistry and Manufacture*, 1921; H. W. Bywaters, *Modern Methods of Cocoa and Chocolate Manufacture*, 1930; C. J. J. van Hall, *Cacao*, 1932; Stroud Jordan, *Chocolate Evaluation* (U.S.A.), 1934; H. R. Britton-Jones, *The Diseases and Curing of Cacao*, 1934; H. Fincke, *Handbuch der Kakaoerzeugnisse* (Berlin), 1936; H. C. J. Wynoogst, *Hints for Cocoa and Chocolate Manufacture* (Copenhagen), 1938.

Coco de Mer, so called from the fact that it was first seen floating on the Indian Ocean, is the fruit of a species of palm. The double coco-nut, as it is sometimes termed, is the largest fruit known, and takes ten years to attain maturity.

Cocomas, Cocamas, or Cucamas, aboriginal tribe of S. Amer. Indians, mainly inhabiting a dist. on the Marañon and lower Huallaga Rs. in Peru. They were first visited by Jesuit missionaries in 1681, and were then cannibals, but are now partly Christianised, and considerably more industrious and courageous than most of the natives. It is suggested by a study of their language that they are a remnant of the Tupi-Guarani stock.

Coco-nut, fruit of a species of palm (*Cocos nucifera*) found in most tropical regions, and reaching perfection in a sandy soil near the sea. It is found on even the smallest is. of the Pacific, the nuts being admirably adapted for distribution by ocean currents, and germinating readily when cast up on shore. The tree grows to a height of 60–100 ft., and consists of a cylindrical stem 1½–2 ft. thick, marked with rings where leaves have formerly grown, and terminating in a crown of from sixteen to twenty graceful pinnate

leaves each about 15 ft. long. These consist of a strong central rib, on both sides of which are numerous long thin leaflets. The flowers grow in branching spikes, 5-6 ft. long, enclosed in a spathe, and each of these produces from five to fifteen nuts. The C. as seen in England is the inner kernel, which is naturally enclosed in a thick fibrous outer husk. The inner shell contains the kernel, which in turn encloses a milky liquid. The tree begins to bear at seven or eight years of age, and continues to produce four or five crops a year for seventy or eighty years. Its uses to the natives of the regions where it grows are numberless. The nut, in various stages, is a standard article of food, and the milk forms an agreeable

case of many insects, especially of moths and silk-worms. This outer web or ball is spun from the mouth by caterpillars before passing into the chrysalis state. Originally the word was only applied to the C. spun by the silk-worm (*Bombyx*). It is now extended to all similar structures (e.g. silken case spun by spiders to receive their eggs). The pupal stage may last a long or only a short time, the covering splitting when the insect is ready to emerge.

Cocos, genus of tropical palms containing thirty species of graceful plants. The commonest of these is *C. nucifera*, the coco-nut palm, which serves a great variety of purposes in its native countries, and is well known to us on account of its edible fruit.

Cocos Islands, see KEELING.

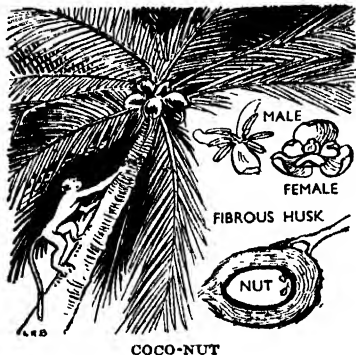
Cocteau, Jean (b. 1891), Fr. poet, dramatist, and novelist, b. in Maisons-Laffitte, France. Has thrown himself into every new movement in the artistic world of France, drawing upon the new artists and musicians like Picasso, Erik Satie, Darius Milhaud to collaborate with him in the production of ballets like his famous *Le Boeuf sur le Toit* (1920) and *Les Mariés de la Tour Eiffel* (1921). Two of his novels, *Le Grand Écart* and *Thomas l'imposteur* (both 1923), had a considerable sale. His books of criticism, *Carte blanche*, *Le Coq et l'Arlequin*, *Le Secret professionnel*, have become the guide-books for the younger writers. His *Opium: Journal d'une désinvolture*, pub. in 1930, is presumably autobiographic. In 1940, with the pub. of *La Fin du Potomak*, he returned to an explanation of the subconscious first sought in his *Potomak* (1913).

Cocumilia, name of a kind of plum found wild in Calabria. It has the reputation of being a powerful febrifuge, and the bark is much used for the cure of intermittent fevers.

Cocytus (modern Vuvo), riv. of Epirus, trib. to the Acheron, which flows into the Ionian Sea 20 m. N. of the gulf of Arta. In Gk. mythology it was held to be one of the rivers of Hades, and the name, which means wailing, refers to the cries of the dead. Hence Milton's 'Cocytus named of lamentation loud.'

C.O.D., see CASH ON DELIVERY SYSTEM.

Cod, or *Gadus morhua*, important species of bony fish in the same genus as the haddock, whiting, and pollack. Other representatives of the family Gadidae are the hake, ling, and turbot, but the cod surpasses all these in economic importance; as a food it is much valued, and cod-liver oil is of great repute in medicine. The distinguishing features of the C. are the large mouth, of which the upper jaw is the greater. The distinct tail, elongated dorsal and anal fins, the wide gill-opening, the four gills with a slit behind the fourth, the free-lom of the gill membrane from the isthmus, the absence of pseudo-branchiae, and the presence of an air-bladder. The body is generally of a dark grey hue, is elongated in form, and covered with small, soft scales, while a small barbel depends from the chin. It



drink. The root is sometimes chewed as a narcotic; the young terminal bud, palm cabbage, is a delicious vegetable; the sap, in various stages of fermentation, forms toddy, palm wine, and arrack, and is boiled down to form a sugar known as jaggery. The leaves serve as thatch, and are plaited for mats and baskets; the trunk supplies a valuable timber known as porcupine wood; and the coir, or outer husk, is made into ropes, cordage, etc. The kernel also contains 70 per cent of a fixed oil, which is obtained by pressure or boiling from the dried and broken nuts. It is largely used in the manuf. of candles and marine soap, and is also used as a substitute for lamp-oil, lard, and cod-liver oil for various purposes.

Coco-nut Beetle, or *Batocera rubus*, species of Cerambycidae found in the E. The larvae do much damage by eating the young coco-nut trees, and are themselves eaten by the natives.

Coco-nut Oil, or Coco-nut Butter. The oil is obtained from the fruit of the palm-tree, nearly three-quarters of the kernel being composed of it. It is a solid white buttery substance, and when made into soap it lathers well in sea-water. It is used in cooking in the tropics, and is also manufactured into candles and ointment. A large amount is exported from Ceylon.

Cocoon (from Lat. *concha*, shell), pupa-

inhabits the deeper parts of the sea, and at the bottom betrays its carnivorous instincts, its food consisting of such animals as crabs, molluscs, worms, herrings, and a few members of its own family. It is the largest of the Gadidae, attaining a length of 4-5 ft. and weighing as much as 100 lb. The C. is found in the temperate regions of the N. hemisphere, along the N. European coasts, not farther S. than Gibraltar, and on the Amer. coast, the fisheries off Newfoundland being especially famous. Other C. fisheries are those of the Lofoten Isles off the N. coast of Asia. It spawns in the early part of the year between Feb. and April, and is very prolific, one fish producing as many as eight or nine million eggs. Of these, however, very few are ever fertilised, and the young C. are quite small, being less than an inch long when first produced. C. fishing was an important industry five or six centuries ago, and was carried on by people of various nationalities, among them Fr. and Eng., on the shores of N. Europe and Iceland. The largest C. fisheries in the world at the present day are those of the Grand Banks of Newfoundland (about 500 fish being caught in eleven hours), while in Europe the industry is at its height on the coast of Norway, though these fisheries are not so rich as they were. The C. are caught principally by lines and bait, long lines and hand lines both being employed. A large quantity of the C. caught off Newfoundland is dried and salted, and is then exported—a considerable amount—to the countries of S. Europe. In addition to this the fish furnishes other useful products, isinglass being obtained from the air-bladder, and cod-liver oil, as mentioned above, from the liver, this oil being used largely as a medicine for lung complaints. In some parts the heads of the fish are used as a food for cattle, and the roe alone is used for human food.

Cod, Cape, *see* CAPE COD.

Coda (Lat. *cauda*, a tail, through It.), in music, a term applied to a passage concluding a composition or one movement of it. It was originally only a few simple chords, but it has been developed, notably by Beethoven, into an important and elaborate feature of a composition.

Code. This word is now most commonly used to denote a collection of laws. There are sev. kinds of Cs. A C. may be made by merely collecting and arranging in a chronological or systematic order the existing laws of a state. Such a collection is either promulgated by public authority, as was the case with the Theodosian C. and Justinian's Cs., or by private individuals, as the Gregorian and Hermogenian C. Different Cs. have been made with different objects. Theodosius's motive was to promote the study of law, and with that end in view he pub. a collection of the constitutions (decisions) of the emperors from the time of Constantine. It was modelled on the earlier and private collections compiled by the jurists, Gregorianus and Hermogenianus. Justinian's first C. (A.D. 529) was founded on that of Theodosius, while

the second was a revision of the first with the addition of a book of fifty decisions (A.D. 534). A considerable number of Cs. sprang from Rom. law, e.g. the Romano-Barbarian Cs.—Edictum Theodorici, the Breviarium Alaricanum (q.v.), and the Lex Burgundionum (Fr. Loi Gombette). The influence of the breviary of Alaric, according to Prof. Muirhead, was so great in Europe that until the twelfth century it was from it rather than from the Justinian collections that W. Europe acquired such knowledge as it had of Rom. law. A C. by which the legislative power makes a new system of laws—so far as that is possible—is very different from a mere compilation of existing laws. Of this latter kind are the C. Napoléon (q.v.) (1804-10) and the Germanic civil C. (1900). The C. Napoléon, however, was based largely on the civil or Rom. law, and the Prussian C. borrowed its technical language from the Rom. law. Austin says the Fr. C. was never expected by its compilers to supersede all other law, but was meant to be supplemented or ckeed out by anct. customs and general principles of law and equity. With all its faults, and in spite of the fact that its original *projet* was drawn up in four months, its remarkable precision has caused it to be adopted as a model by sev. other European states. There is another but cognate sense in which C. is used to denote bodies of law credited with a divine origin, e.g. the Mosal dispensation of the Pentateuch, and the Islamic law of the Koran. But a C., though it may adopt many existing laws or rules of law, is now generally used to express a comprehensive body of law suited for all the purposes of the community for which it is intended; and it may contain new principles and new rules of law.

Codeia, or Codeine ($C_{17}H_{19}ON(OCH_3)$), (OH), alkaloid forming 0.3 per cent of opium. It is identical with *methylmorphine*, and resembles morphine in its hypnotic effects. It is obtained, in orthorhombic colourless crystals, with one molecule of water of crystallisation. It is insoluble in alkalis, but dissolves readily in alcohol, ether, and chloroform. In medicine C. is used as a soporific, but, like morphine, it must be employed with caution and only under the supervision of a medical man. It is used to allay the irritation causing cough when a paroxysm is likely to prove dangerous, and has been employed to this end in whooping cough. It is useful also in *diabetes mellitus* where it tends to prevent the excretion of sugar.

Code Napoléon, or the Civil Code of Fr. law. The term C. N. was suppressed in 1814, but re-established in 1852 out of respect for Napoleon's memory. Since 1870 the name Code Civil has come into general use. Before the Revolution there existed no unified system of laws, and France was divided between the *droit coutumier* in the N. and the *droit écrit* in the S., based on Rom. law. Under the Fr. constitutions of 1791 and 1793 it was promised to codify the laws, but it was not until Napoleon became First Consul

that five commissions were set up in 1800-1802 to codify the laws under five heads, of which the first is the Code Civil or C. N. Three jurists—Tronchet, Portails, and Bigot—were entrusted with the task of drafting the code, and, being from the N. they drew largely upon the *droit coutumier*, but some sections of Rom. law were incorporated. The first fourteen laws were passed by the Assemblies in 1803 and the remaining twenty-two in 1804. The third and authoritative ed. of the C. N., still in force, appeared in 1816. Napoleon is said to have been prouder of the C. N. than of his many victories. The code is clearly expressed in a straightforward style and is well arranged. It is divided into three books preceded by a preface. Book I. (articles 7-515) is concerned with persons, and is subdivided into eleven sections, which deal with the distinctions between Frenchmen and foreigners, with civil domicile and with absence, with marriage and divorce, with paternity, adoption, and paternal authority, and with minority and majority. Book II. (articles 516-710) is divided into four sections, concerned with classification of property, with ownership, usufruct, and easements. Book III. (articles 711-2281) details the different ways ownership may be acquired. It has twenty sections, which come under seven main heads: successions; gifts *inter vivos* and wills; the theory of contracts or obligations; the marriage contract; other contracts (sale, hire, loan, bail, etc.); priorities and mortgages; and prescriptions. The C. N. has been trans. into Eng. by E. Blackwood Wright and others. See CODIFICATION.

Codex Argenteus, see ARGENTEUS.

Codex Bezae, see BEZA, THEODORE.

Codex Sinaiticus, see SINAITICUS, CODEX.

Codex Vercellensis, see VERCELLI BOOK.

Codiell, writing by way of supplement to a will, and which is to be considered as part of it, whether for the purpose of explaining, altering, or adding to the provisions of the will. In the Rom. law Cs. were small tablets on which memoranda or letters were written, giving directions to the heir, especially in regard to creating *fidei commissum* or trusts. By the Rom. law a testator could not alter his will unless he made an entirely new will. Hence the utility of Cs., which in Rom. law could be made whether there were a will or not. Such C. differed from the Eng. C., therefore, in that it did not mean a supplement to a will, but obligatory directions by tablets. Where a Rom. C. was confirmed by testament, it was operative to give legacies as well as to create *fidei commissum*. Rom. Cs. had to be made in the presence of five witnesses. In Eng. law a will when once signed and attested cannot be altered without being re-executed except by a C. The execution of a C. operates as the re-execution of the will, and hence a C., duly executed as a will, will render a will which was not duly executed valid, provided the C. clearly refers to the will. Where a will is revoked by actual destruction, no C. can revive it. A C. forms part of the will,

and is incorporated with it in the probate. If in any way inconsistent with the will, the C. prevails. A C. must be executed with the formalities of a will, that is, signed in the presence of two witnesses. See WILL.

Codification means the process of classifying laws or reducing them to a system or digest. Such process marks the matured stage in the development of any legal system. In its modern connotation C. is a word importing no change in the substance of law, but rather a process of addition and subtraction effecting such a change in form as will render law more intelligible and coherent, and less redundant and prolix. Law is essentially progressive. The assumption that it is static leads inevitably to supplementing the code by constant additions that finally deprive the code of all pretensions to finality. For example, Justinian not only expressly reserved in his code the right to make any legislative reforms he might see fit, but, in fact, within the space of thirty years added 163 *novellæ* or new laws. The element of truth in the above popular definitions of C. is that undoubtedly the law as codified is up to that point complete and exclusive. The most conspicuous modern instances of C. are: (1) The Code Napoléon (Code Civil) of 1804-7: a code which has been much animadverted on as the product of ill-considered haste and fallacious brevity. Following it were the Code de Commerce, Code Pénal, Code d'Instruction Criminelle, and various procedural codes. (2) The Code Frédéric of 1751, aimed apparently at the power of the advocates and intended to make law knowable to all. It purported to explain the Rom. law, Saxon law, and other foreign subsidiary laws and statutes, but left unimpaired the prov. laws of the Germanic states, which last fact is usually explained by reference to the want of homogeneity between the various states themselves. The avowed object of the above codes was to frame a common system in place of sev. systems, rather than to restate in exact and exhaustive form the whole of the existing laws. Eng. law reformers have generally been satisfied with the solution of this last and less ambitious problem (see CODE AND CONSOLIDATION OF STATUTES). (3) The code of the state of New York. This came nearer the desired Eng. solution of the problem of an exhaustive restatement. But it affected to provide 'for every possible case, so that when a new case arises it is better that it should be provided for by new legislation.' As regards the Brit. Empire, India seems to have been the *corpus vile* for codificatory experiments. The Indian Evidence Act of Stephen (see EVIDENCE) and the Penal Code drafted by Macaulay seem to have worked well, but they certainly would not suit Eng. exigencies and were rightly rejected here. Those latter codes are characterised by a profusion of illustrations by way of graphically presenting the principles in more concrete form. The extent to which England itself has gone

in the direction of codes will be seen in reference to the article on CONSOLIDATION OF STATUTES. The arguments for and against C. are legion. Austin appears to have been the first Eng. jurist to state in clear terms the desirability of C., with refutations of the current objections. The current objections and his answers may be summarised as follows: (1) That a code cannot be complete so as to anticipate all conceivable cases. Austin denied that such a desideratum was the object of C. at all, for the mere assumption of its possibility was tantamount to a supposition that the existing morality was incapable of amelioration, and to the erroneous belief that the enactment of one Parliament can bind all future Parliaments. (2) That a code would give rise to conflicting analogies to the number of its provisions, and that these latter would be so numerous as to be unknowable. Austin answers this by pointing out that the incompleteness of statute law or any law is not obviated by making no law at all. It is clear, too, that all legal principles, or any principles for that matter, give rise to competing analogies. The choice between them is essentially the function of a judge. (3) Austin then speaks of the alleged failure of the Fr. and Prussian codes. He answers this by pointing out that they were not fair examples of what they might have been had less haste been shown in producing them. Like the Rom. Code, however, there was a lack of scientific precision in the Code Napoléon and it is marked by the same curious juxtaposition of principles, maxims, and philosophical speculation. None the less it is the basis of the systems of most of the Lat. races. Austin was for C. himself, and thought it was entirely a question of time and place. But a set-back was given to the cause of C. by the somewhat extraordinary ideals of Bentham. Bentham's age was essentially one of ideals. The contrast between his Utopian schemes and the chicanery of his times was too great to admit of the comprehension of the possibility of such reforms as he advocated; whence the tardiness which has attended their development. Bentham sets up the beau idéal of possible codes. The desire for C. in England is not prompted by the same reasons as have existed in other countries. The Ger. Code was the expression of a desire for national unity; the Fr., the manifestation of hatred for the old order of things. In England the desire is the merely practical if prosaic one of rendering law more accessible and coherent instead of being diffused over a vast mass of reports, text-books more or less accepted as authorities, statutes, and vaguely defined usages.

Codigoro, tn. of Emilia, Italy, on the Po di Volano, 23 m. E. of Ferrara, 8 m. from the Adriatic. Since the draining of the extensive marshes it has become a thriving agric. dist. Pop. 14,800.

Cod-liver Oil, marine oil extracted from the liver of the cod-fish (*Gadus morrhua*). It is sometimes, however, adulterated

with oil from the ling or turbot, but the latter are not officially recognised. The chief exporting countries are Norway and Newfoundland, the former utilising fish from the North Sea and the latter those of the Newfoundland banks. The processes of manuf. have improved greatly of recent years, and, in place of the old coloured and disagreeable fluid the best medicinal varieties are almost colourless and tasteless. Healthy and fresh cod livers are taken and placed in barrels and the exuding oil ladled out. Gentle heating brings out more oil. These products, however, are not equal in value to that obtained in the next process, which consists in leaving the livers in rooms with freezing mixtures, when the oil which remains unfrozen is taken off and constitutes the best variety of oil. A coarse variety is next obtained by boiling down the remains of the livers. It is of dark brown colour and is used for treating leather. In the operation of stuffing, dubbin (a mixture of tallow and C. O.) is rubbed into the leather to make it waterproof and supple. C. O. has a great value as a food, and consequently has great vogue in wasting diseases such as consumption. It is the best fat food except cream, and is easily digested, especially when in the form of an emulsion—that is, in small globules. This is probably due to the existence of free oleic acid to the extent of about 5 per cent, which is a good emulsive agent. There are also olein (80 per cent) and palmitin and stearin, which are valuable glycerides. Owing to the repulsive nature of the oil to some stomachs, the doses should begin in small quantities of a teaspoonful and gradually increase to a tablespoonful.

Codogno, tn. of Milan prov., Lombardy, Italy, between the Po and the Adda, 8 m. N. of Piacenza. It manufs. silks and the cheese known as Parmesan. Pop. 12,000.

Codoripo, tn. of Venetia, Italy. Pop. 8000.

Codrus, son of Melanthus, and the last king of Athens. He lived about the eleventh century B.C. When the Dorians had invaded Attica he is supposed to have acted on the advice of the oracle, and to have given his life for his country.

Codrington, Christopher (1668-1710), Eng. soldier, commonly called **Codrington** of All Souls, son of Christopher C., a captain-general of the Leeward Is., and grandson of the first Christopher C., who lies buried in the par. of St. John, Barbados, with which is the C. family was closely associated. C. of All Souls was b. in St. John, Barbados, son of an immensely wealthy father whose fortune had in fact been made in the W. Indies and whose spacious stone ancestral home in the Cotswolds still stands. In contrast to his father's turbulent life in camps and hard living amongst planters, C. grew to young manhood among the élite of Oxford scholars and the literary stars of London and Paris. He was the close friend of Addison, John Boyle, earl of Orrery, Atterbury, James Garth, Anthony

Wood, and many others. Educated at an Enfield school and at Christ Church, Oxford. Elected to All Souls as a probationer fellow (1690), where already he showed his bibliophile taste by collecting valuable books. While still retaining his fellowship he followed King William to Flanders (1694) and, fighting with distinction at Huy and Namur, was made captain of the 1st regiment of foot guards by the king. Though C. gained the reputation of a wit and scholar it is as a W. India governor and captain-general that he is remembered. It was in 1699 that the king made him captain-general and commander-in-chief of the Leeward Is. in succession to his father. After war broke out with France and Spain C. led an expedition against Guadeloupe, but notwithstanding his skill and personal gallantry the attack, owing to the fact that the navy would not co-operate, ended in disaster, much in the same way that his father's expedition against the Fr. failed. C. then resigned his governorship and spent his few remaining years in seclusion and the study of philosophy and Church hist. at his estab. in Barbados. By his will he left a large legacy in cash and books to All Souls College, a legacy which was enough to build and endow a large library, in the middle of which may be seen his statue by Sir Henry Cheere. He left his Barbadian estates to the Society for Propagation of the Gospel for the foundation of a college in Barbados 'on monastic lines'; this, C. College, is the oldest college in the W. Indies and is affiliated to Durham Univ.; but C.'s monastic idiosyncrasies were rightly ignored by the legates. Buried in All Souls Chapel. See V. T. Harlow, *Christopher Codrington, 1688-1710*, 1928.

Codrington, Sir Edward (1770-1851), Brit. admiral, b. at Dodington in Gloucestershire, and entered the navy in 1793. At Trafalgar (1805) he commanded the *Orion*, and subsequently took part in the Walcheren expedition. Rear-admiral in 1814, he led the fleet at Washington and Baltimore in the Amer. war. In 1826 he commanded the combined fleets of Great Britain, France, and Russia at the battle of Navarino, in which he destroyed the Turkish navy, but was held to have exceeded orders and recalled. He became admiral of the red in 1837, and in 1839 was appointed commander-in-chief at Portsmouth.

Codrington, Sir William John (1804-1884) Brit. general, second son of Sir Edward C. (q.v.). During the Crimean war he distinguished himself at Alma and Inkerman, and was in 1855 raised to the rank of commander-in-chief in the Crimea. Afterwards became governor of Malta (1859-65).

Cody, Samuel Franklin (1862-1913) ('Colonel Cody'), aviator and inventor of a triplane, was b. at Birdville, Texas. His aviation began in England in 1908; he competed at various meetings, including Doncaster and Bournemouth. Won War Office prize, 1912. He was killed in an aeroplane crash near Aldershot, Aug. 7.

Cody, William Frederick (1845-1917),

famous all over the world as Buffalo Bill, and one of the last of the picturesque figures of the far W. in the U.S.A. before it became a settled agric. country, *b. Scott co., Iowa, U.S.A., Feb. 26*. In the days before the great transcontinental railways were built across the prairies and through the mts. to the Pacific coast, C. became noted in the sixties as one of the chief riders for the famous Pony Express. This was organised by a company which undertook to forward the U.S.A. mails from St. Joseph, Missouri, to Sacramento, California, by means of intrepid men who rode relays of ponies through country often dangerous because of hostile Indians. Upon the outbreak of the Civil war, C. became one of the most skilful scouts and guides for the N. troops operating in the middle W. Upon the close of the war, when Congress gave huge land grants to companies undertaking to construct railway lines to the Pacific coast, C. obtained the contract to supply the railway workmen, who were laying the lines, with fresh supplies of buffalo meat. The buffalo, or more correctly the bison, then roamed the prairie lands in thousands. It is recorded that C. killed 4820 bison in eighteen months. Ever afterwards he was known as Buffalo Bill. After that, he again served his country in the wars against various Indian tribes. Then looking around for fresh worlds to conquer, Col. C. recalled that the youth of two continents had been fascinated by tales regarding the Indians, the cowboys, and the trials of settlers who were attacked by the red men. He gathered together a band of cowboys, who were expert riders and lasso-throwers, and also secured a large number of Indians of various tribes through arrangements with the U.S. Gov. This was the beginning of his famous travelling entertainment Buffalo Bill's Wild West Show. It was an enormous success in the E. states of the U.S.A. Col. C. then took the huge organisation to England and to the leading countries of Europe, and repeated his success, the show being different to anything ever being offered in the Old World. C. d. in Denver, Colorado, Jan. 10, 1917.

Coedfrano, tn. of Glamorganshire, Wales, on Neath Canal, 1 m. N. of Neath. It has copper mines. Pop. 9327.

Co-education, education of the two sexes together in school or college. The term mixed education should be used to describe schools where boys and girls are taught under the same roof, and occasionally together, purely from motives of convenience, and C. reserved for those schools which offer a genuinely shared upbringing, as far as may be, both in and out of the classroom, from a belief in its value as a training in mutual understanding and help, and as a basis for a right adult relationship between the sexes. This latter method has been practised only rarely in the hist. of European education; though it had the strong support of Plato, it finds little or no mention in the pages of the classical educationists, Quintilian, Elyot, Ascham, Milton,

Locke, Rousseau, Pestalozzi, Herbart, Froebel, and Spencer. Yet, historically speaking, segregated education may be held to be an accident: most schools were founded at a time when education was thought unnecessary or even improper for girls. C. was very rare in the ant. world; the spread of Christianity fostered it, and the pioneer court schools of Charlemagne (A.D. 782) and Alfred the Great (c. A.D. 900) were co-educational, as was the famous Renaissance school of Vittorino da Feltre at Mantua (1423). The 'new' humane education of the nineteenth century, deriving largely from the theories of such writers as Luther, Rabalais, Malcaster, Rousseau, Pestalozzi, and Froebel, and protesting against narrowness of curriculum and brutality of treatment, was theoretically favourable to C., but its development (dating in England from the sixties) has been very gradual. Bedales, founded by J. H. Badley in 1893, was the earliest whole-hearted co-educational boarding school. Statistics of co-educational practice in different countries are apt to be misleading, since much of it is only mixed; broadly speaking, it is strongest where the prevailing religious obedience is Protestant or the form of gov. democratic (e.g. all the Scandinavian countries, the U.S.A. and—an interesting exception—Portugal), weakest in Catholic or authoritarian countries (e.g. Eire, Spain, France, the U.S.S.R.). In England, the proportion of mixed state secondary schools (mixed primary education is everywhere normal) is 27 per cent, and of recognised private secondary schools 27 per cent also; but almost all the numerous unrecognised private schools are segregational. All branches of univ. education now practise C. in a greater or lesser degree, as did the first univ., Plato's Academy; but women are still generally admitted in severely restricted numbers. See C. Grant and U. Hodgson, *The Case for Co-education*, 1913; A. Woods, *Advance in Co-education*, 1919; J. H. Badley, *Bedales, a Pioneer School*, 1923; B. A. Howard, *The Mixed School*, 1928; L. B. Pekin, *Co-education*, 1939.

Coefficient, in algebra, denotes the numerical quantity preceding an algebraic term and by which the term is to be multiplied. It is also used to denote the ratio of the increase or decrease of any quantity with a change in a variable quantity which determines its condition. Thus the linear C. of expansion of any material with temp. denotes the increase in length per unit length for one degree rise in temp. We may also regard it as the quantity by which the length of the material must be multiplied to give its expansion for one degree rise of temp. Similar Cs. are the C. of pressure, viscosity, volume, etc. Of course the value of a C. will depend on the unit employed in the independent variable.

Coshoorn, small bronze mortar invented by Menno van C., the engineer, and named after him.

Coshoorn, or Coshoorn, Menno, Baron van (1641-1704), Dutch engineer. He

inherited from his father a taste for military learning. During the Seven Years war, his bravery at Maestricht and Seneffe, and the works of defence which he had constructed made him famous. In 1673, at the siege of Grave, he used a mortar of his own invention. After peace had been declared in 1678 C. devoted his time to engineering work, and fortified many tns. in Holland. When war began again he was to the front, as before, and met Vauban at the siege of Namur, where he had to surrender—but he was present at its recapture, and later on was made lieutenant-general. He commanded a corps in Marlborough's army, 1701-3. D. suddenly of apoplexy. For a description and critical appraisal of his engineering theories, see Marini, *Biblioteca di Fortificazione* (1810) and Honomer, *Essai général de Fortification* (1814).

Coelacanthus (Gk. *koilos*, hollow, and *akantha*, a thorn or prickly). A genus of fishes believed, until 1939, to have been extinct for millions of years. In that year a 5-ft. specimen was caught off the coast of S. Africa by a trawler fishing in 40 fathoms near East London, Cape Province. This specimen was described as being a brilliant steel-blue colour, with large dark-blue eyes. It weighed 127 lb. and was found to be unusually oily. The so-called fossil genus of C. was founded by Agassiz and is the typical one of the family Coelacanthidae or Coelacanthini (in Huxley's classification of the Crossopterygidae raised to the position of a sub order) and occurs in the Carboniferous formation and in the Magnesian Limestone (Trias) of the N. of England.

Cœlenterata (Gk. *κοίλος*, hollow; *έντερον*, alimentary canal), name of a large phylum of invertebrate animals, differing greatly in both structure and habit. All are aquatic, and the great majority are marine. The name was given to them because of the peculiarity of the animals in having their enteric and body cavities closely related and not distinct from one another. A very general feature is the presence of stinging-cells, and nearly all the cœlenterates are radially symmetrical. The nervous and vascular systems are absent or rudimentary, and the body-wall consists of an inner and outer layer of cells, called respectively the endoderm and ectoderm. Reproduction is often sexual, but vegetative multiplication by budding and fission is also common. Both medusoid and polypoid types occur in the C., and in the latter a limy skeleton is frequently developed, and thus forms a coral. The group is divided into three classes, the Hydrozoa, Scyphozoa, and Anthozoa (or Actinozoa). The first class is represented by many well-known animals, e.g. the fresh-water *Hydra* (q.v.), sev. corals and small jelly-fishes, and the Portuguese man-of-war. The second contains the large jelly-fishes often cast up on Brit. shores or found floating in the water, and dreaded by bathers on account of their stinging powers. The third class includes the sea anemones, dead men's fingers, and other corals. The Ctenophora, e.g. *Beroë* and

Cydippe, are regarded by many zoologists as a div. of the cœlenterates, while others regard them as belonging to a separate phylum. The species are very widely distributed, some are free-swimming, others are sessile, and a few are parasitic. Small organisms constitute the greater part of their diet, and in obtaining their food the stinging organs are frequently called into action.

Cœlestinus, see CELESTINE.

Coele-Syria (modern El Buká'a Beka'a, or Bika), valley of Syria, between the ranges of Lebanon and Anti-Lebanon. Altitude 2600-3000 ft.; length about 100 m. Through it flow parts of the Nahr-el-Litany (anct. Leontes) and the Nahr-el-Asi (anct. Orontes). Called Hamath in the O.T.

Coelho, Francisco Adolpho (1847-1921), Portuguese philologist, noted for his profound studies of the Romance languages. Like the brothers Grimm, the celebrated Ger. philologists, he has also pub. a collection of fairy tales, *Contos Populares Portuguezes* (1879). Philological works: *Origem da Lingua Portuguesa* (1870); *Questões da Lingua Portuguesa* (1874); *Os Dialectos Romanicos na Africa, Asia, e America* (1880-82).

Cœlius, or Cœlius, Antipater, Lucius, lived in the second century B.C., and was a Rom. lawyer and historian. He was the first who introduced an ornamental style into his writings, which were highly rhetorical. He wrote the hist. of the second Punic war, and the historian Livy has quoted from his works.

Coello, Claudio (c. 1630-93), Sp. painter, b. at Madrid, who became painter to King Charles II. His masterpiece was 'Charles on his Knees among the Nobles of his Court' (the altarpiece for the sacristy in the Escorial representing the 'Transfer of the Eucharist'). When Luca Giordano was given a commission by the king, C. fell into a melancholy state, imagining that his brother artist was preferred. He was a great painter, and some of his best works are at Madrid and Salamanca.

Coeln (Köln), Wilhelm von, Ger. painter of the fourteenth century. His chief works were mural paintings, the most important being in a chapel of Cologne Cathedral. There are also various other works in different picture galleries which are said to be his.

Cœlogenys, or Paca, S. Amer. genus of rodent mammals in the family to which the agoutis belong. There are only two species; these differ from the agoutis in having five digits on all the limbs in opposition to the three digits of their allies. The animals are remarkable for a curious structural peculiarity in the skull, the jugal arch being greatly developed and almost concealing the lower jaw. *C. para*, the spotted cavy, is one of the largest of rodents, measuring about 2 ft. in length, 14 in. in height; the body is covered with short, stiff wiry hairs, and the tail is greatly reduced. It is nocturnal and vegetarian, lives in a superficial burrow in forests near water, the female produces a single young one at a birth, and the flesh is much sought after as food.

Cœlomata (Gk. κοίλωμα, cavity), wide term, comprising all animals which possess a cœlom, or body cavity, and it thus excludes only a few lower organisms, viz. the Protozoa, Porifera, Cœlenterata, and doubtfully the Platyhelminthes, Nemertea, Nematelminthes, and Potifera. The cœlom is a part of the enteric cavity which has retained its connection with the enteron, but has lost connection with the part that constitutes the alimentary canal. It performs the functions of producing the reproductive cells and secreting the nitrogenous waste.

Cœlostet, instrument for reflecting the light of a heavenly body in a constant direction despite the rotation of the earth on its axis. It is a mirror, mounted and adjusted on an axis which points to the pole. It revolves at half the apparent diurnal motion of the stars, so that the image of the sky reflected in it shows the stars at rest.

Cœmptio (joint-purchase), in Rom. law, a form of civil marriage, so called from the mutual fictitious sale of the two parties. The ceremony took place before five witnesses and a *libripens* (holder of the balance).

Cœnobites, or Cenobites (Lat. *cœnobita*; Gk. κοινός, common, *bios*, life), members of a religious order living a community life as opposed to hermits. See MONASTICISM.

Cœnurus, now known to be merely the asexual stage in the life-hist. of certain Cestoda, or tapeworms, was formerly considered to be a distinct animal. This bladder-worm lives in an intermediate host which is eaten by a vertebrate before the parasite matures. *C. cerebralis* is the bladder-worm which is found in the brain of a sheep and gives rise to staggers, a disease which often works great havoc among a flock. *Tænia cœnurus* occurs in the dog.

Cœrullgnone, see CEDRINET.

Coesfeld, tn. of Westphalia, Germany, 19 m. W. of Münster, with a textile industry. The greater part of the tn. was completely destroyed in the Second World War. Pop. 12,000.

Coethen, see CÖTHEN.

Cœur, Jacques (c. 1395-1456), Fr. merchant and financier, b. at Bourges. A celebrated trader of the reign of Charles VII., who inaugurated an extensive trade between France and the Levant. He was made the king's master of the mint, and from 1436 was in charge of the Fr. royal finances, advancing large sums to the king for carrying on his wars. C. amassed a huge fortune. Founded colleges in Paris, Montpellier, and Bourges, and controlled the trade of the whole country. At the height of his fortunes his enemies prevailed on the needy king to desert him and his fall was as swift as his rise. The king seized the opportunity afforded by the sudden death of Agnes Sorel, the king's mistress, to accuse C., who had been appointed one of her executors, of having poisoned her. This and other allegations were without foundation but C. was condemned to confiscation of his whole fortune. In 1455 he succeeded in escaping to Rome, but some say he was

exiled there. According to some accounts Calixtus III. put him in command of a fleet of galleys for the relief of Rhodes but C. was taken ill at Chios and d. there. See P. Clement, *Jacques Coeur et Charles Sept*, 1858, Vallet de Vireville, *Charles Sept et son Epoque*, 1862-5 and Michelet's *Histoire de France*.

Coffee, and **Coffee Trade** (Turkish *kahreh*, from Arabic *qahwah*, wine, the coffee-beverage), beverage made from the roasted seeds of the C.-tree (*Coffea arabica* being the best known of some twenty species of *Coffea*, few possessing such commercial value). Originally a native of Abyssinia and Arabia, this tree has been introduced to very many parts of America, Central Africa, and is now



COFFEE

extensively cultivated in a belt about 25° N. and S. of the Equator. The *Coffea* (*Coffea*) genus belongs to the order Cinchonaceae. When wild, the tree is tall and slender with few branches, but the cultivated kind is pruned to a height not exceeding 6-10 ft., and trained in a pyramidal form with horizontal branches. The leaves are evergreen and shiny. They grow opposite, are leathery, and oblong in shape; the flowers are snow-white and small, clustered in the axils of the leaves, and very sweet-smelling. The ripe fruit is a dark scarlet colour, and contains two cells, each with a single seed. These seeds, called also C.-beans (from Arabic *bunn*, C.), C.-nibs, or C.-berries, are hard semi-ellipses. The *Coffea mauritiana* has bitter, slightly emetic seeds. The Liberian C.-plant of W. Africa seems more hardy than *C. arabica*, and better able to withstand the ravages of the leaf-disease which proves so injurious to C. plantations. It flourishes in well-drained, sandy, or gravel soils, and on highlands, 1000-3000 ft. above sea level. In Peru and Ecuador it is cultivated at a height of 6000 ft., but escapes frosts. C. plantations are usually laid out in quadrangles, one-year-old trees, 12-16 in. high, being set in rows. They are pruned

to the same height, the ground being kept clear of weeds. Shade is needed, especially at first, and always in hot, dry climates, when irrigation is also necessary. The water supply should be lessened as the fruit ripens. Normally the first crop is yielded in the third year (amounting to as much as 2 lb. of seeds), and the trees live forty years. In the W. Indies and Brazil three ann. gatherings are made. The beans are put on mats, dried by the sun, and often turned. They are passed between rollers to remove the dried pulp, freed from impurities, and put in bags for export. A wet method is also used extensively for *C. arabica*. The quality and price depend largely on the care expended in the process of preparation. Used in Ethiopia from the earliest times, C. was introduced into Arabia by the fourth century, soon spreading to the rest of the E. Ranwolf made it known to Europeans by an account of his travels, printed 1573. The plant was taken from Mocha to Batavia by Wieser, burgomaster of Amsterdam, in the seventeenth century, and thence spread to Martinique (1720, from France), and has flourished in the W. Indies ever since. The chief different kinds of commerce are Mocha (from Arabia, with yellow-brown beans), Java (with large yellow beans), Jamaica and E. Indian (with large blue-green beans), Surinam (which has the largest beans), and Bourbon (with pale yellowish-white beans). There are numerous ways of preparing C. for the table, the W. idea being to get the liquid free from all sediment by means of strainers of different kinds. The Turks drink their C. thick.

A number of cheaper substitutes are frequently used instead of C., or mixed with the ground berries, notably chicory root, dandelion root, cereal, carrot, yellow iris seeds, etc. The seeds of *Astragalus histicus* are known on the Continent as Swedish C. All these lack the chief constituent, caffeine, and are much inferior (see ADULTERATION). Real C. is very refreshing, stimulating the system and diminishing the waste of tissues (see TEA). It is an antidote to opium or alcohol poisoning. Its four chief constituents are caffeine, volatile oil, caffeotannic and caffeic acids. The C. T. is very important, Brazil being by far the chief producer; some four-fifths of the world's ann. crop is produced in that country. C. is also largely exported from Mexico, Central America, Java, Sumatra, India, Ceylon, Arabia, Hawaii, and the W. Indies. A great deal of the C. consumed in Britain comes from E. Africa. Receipts from the customs on C. and cocoa are somewhat fluctuating, but show a marked decrease since 1927, the largest return being roughly £908,000. The consumption of C. per head in Great Britain and N. Ireland was 0.76 lb. in 1936, but had trebled by 1949. *Bibliography.* See G. C. W. Lock, *Coffee: its Culture and Commerce in all Countries*, 1888; W. H. Ukers, *All about Coffee*, 1922; J. H. McDonald, *Coffee Growing: with Special Reference to East Africa*,

1930; E. Windle, *Modern Coffee Planting*, 1933; H. Jacob, *The Saga of Coffee: The Biography of the Economic Product*, 1935.

Coffee-houses, first known in Cairo, were estab. in Constantinople during the latter part of the sixteenth century, and are referred to in the writings of Burton (1821) and Bacon (1827). In the second half of the seventeenth century they were estab. in many European cities: Marseilles (1671), Hamburg (1679), Vienna (1683), Nuremberg (1686), Augsburg (1713). The first Eng. coffee-house was opened in Oxford in 1650 by a Jew named Jacobs, while the first London one dates from 1652, and was opened in St. Michael's Alley, Cornhill, by a Ragusan, Pasqua Rosee. They very speedily became extraordinarily popular and were much frequented. In 1675 Charles II. attempted to suppress them as being the place of resort of the politically discontented. They served to a great extent as clubs. Among the most famous were Garraway's and Jonathan's, both in Change Alley, the former the scene of many a rash speculation during the time of the S. Sea Bubble, the latter, according to the *Tatler*, 'the general mart of stock-jobbers, Lloyd's; the Jerusalem, which also served as a news-room; Don Saltero's, with its attached museum of curiosities; Wills's, which Dryden visited; the St. James's, where the members of the Whig party met and Goldsmith originated his *Relaxation*; Button's, the favourite resort of Addison and Pope; and Tom's, in Birchin Lane, Cornhill, which Garrick frequented. At the present time cafés are merely eating-houses without licence for sale of intoxicants, and exist throughout the Brit. Isles. In France the *café chantant* is merely a kind of informal music-hall.

Coffer, see CHEST.

Cofferdam, structure used by an engineer in the building of bridges, piers, and any other such erection whose foundations are under water. The purpose of the C. is to keep these foundations watertight, and it is made, as a rule, of two rows of piles, the distance between them being variable, sometimes 6 ft. and sometimes less. This distance is filled in with clay puddle, which thus resists the force of the water and ensures that the part protected is water-tight. If there is very little pressure of water and no current, a very simple form of C. may be used. This is made entirely of clay; but the piles are more generally used, as they effectually prevent the force of the water from driving in the walls. If a permeable soil overlies a hard rock, the former should be dredged so that there may be no leakage in the foundation. See D. H. Lee, *Sheet Piling, Cofferdams, and Caissons*, 1945.

Coffey's Still, apparatus for separating substances of different degrees of volatility from a liquid mixture. Different varieties of the C. S. are used in the spirit, ammonia, and coal-tar industries. In whisky distilleries the still consists of one or two vertical columns separated into chambers by perforated copper plates.

Steam is introduced at the base of one column and passes upwards through the perforations in the copper plates. The wash, or dilute alcohol, is introduced at the top of a column, is prevented from passing through the perforations by the pressure of the steam, and descends from chamber to chamber by means of a pipe, whose mouth stands slightly above the level of the copper plate. By this means the steam is kept in contact with the wash, and the more volatile constituents, including the alcohol, pass with the steam to the base of the cooling column, where they condense at different levels according to their boiling-points. At the level above which the alcohol condenses, the chamber floor is not perforated, so that the alcohol collects and is carried away by a special pipe. The still more volatile constituents are conducted to a water-cooling chamber. The strength and quality of the distillate are controlled by regulating the pressure of the steam and the rate at which the wash is pumped up to the analysing column.

Coffeyville, city of Montgomery co., Kansas, U.S.A., on the Verdigris R., 19 m. S.E. of Independence. The centre of natural gas area, oil, and coal-fields. It has numerous mills and factories. Pop. 17,300.

Coffin (Lat. *cophinus*, basket or chest), receptacle in which dead bodies are buried. The earliest known use of Cs. is in anct. Egypt, where they were made of wood and stone. The word is used only once in the Bible, referring to the burial of Joseph. The Gks. and Roms. seem to have used Cs. in anct. times, but later resorted to cremation. The Gk. Cs. were of various shapes, and usually made of baked clay; the Rom. *arcas*, or *loculi*, were frequently made of a limestone from the Troad which was believed to have a corrosive action on the flesh (see SARCOPHAGUS). The early Christians in Rome always buried their dead in Cs., which were either hewn out of the living rock or formed of sculptured stone. Cs. appear to have been used by other European nations from prehistoric times. These have been found in Scandinavia, both of hollowed tree-trunks and of stone slabs lining the grave. This latter form, known as the *kistnaen*, has also been discovered in Britain. In medieval times in England the lower classes seem to have simply buried their dead wrapped in a cloth; but the wealthier people employed tapering stone Cs. and occasionally leaden ones. The light wooden C. now used is of recent origin. Wicker Cs., which have many sanitary advantages, have been introduced, but with little success.

Cogalniceanu, Michael (1817-91), Rumanian statesman, b. at Jassy; studied at Paris and wrote at the age of twenty his *Histoire de la Valachie et de la Moldavie* (1837). Upon his return to Moldavia he did much by his writings to pave the way for the revolution of 1848. He was a staunch advocate of the union of the two principalities of Wallachia and Moldavia,

and in 1859 was chosen by Prince Cuza as his Prime Minister. His administration was of an enlightened character, and he introduced a better educational system, secured distribution of land among the peasantry, and abolished serfdom. He pub. a collection of old Rumanian chronicles in 1872, and his *Esquisse sur les Teiganes* in 1873.

Coggeshall, tn. of Maldon div. of Essex, England, on the R. Blackwater, 6 m. S.E. of Braintree. Its manufs. include silk, velvet, and isinglass. Pop. 2500.

Cognac, tn. of France, in the dept. of Charente, with anct. church and old buildings, including a castle which is now filled with brandy. C. is the centre of the production of and trade in brandy and the making of casks and corks. Only brandies produced within a region specified by Fr. law may be termed C. It was for long one of the Huguenot strongholds. Pop. 17,400.

Cognates (Lat. *cognatus*). In Rom. law C. were persons who were sprung from a common marriage, through either male or female antecedents, whereas agnates were persons related through males only. The foundation of C. was thus the legal marriage, while agnates were such persons as were under the same *paterfamilias*, or would be, were he still living. Those who were of the same blood by both parents were sometimes called *germani*; *consanguinei* were those that had a common father only, and *uterini* those that had a common mother only. In reckoning the nearness of C. reference is made to the common ancestor. Each generation is counted up to and including the common ancestor and thence down again along the other line, so that an uncle and a nephew are C. of the third degree, first cousins of the fourth degree, and so on. In Scots law C. are persons related through the mother, and agnates those related through the father.

Cogne, tn. of Turin prov., Piedmont, Italy, in the C. valley, 9½ m. S. of Aosta. There are deposits of iron ore in the neighbourhood. Pop. 2000.

Cognisance, see under **BADGE**; **CREST**.

Cognovit, plea in an action at law operating after the manner of a recognisance, by which the defendant acknowledged or confessed the justice of the plaintiff's claim (*cognovit actionem*). The effect of a C. was to obviate the necessity of a trial, judgment being allowed to go by default for the plaintiff. Cs. are obsolete at the present day, the same result being attained by the simple process of signing judgment by consent.

Cohan, George Michael (1878-1942), Amer. playwright, actor, and song-writer. B. at Providence, Rhode Is., U.S.A., son of Jerry John, actor, and Helen Frances (Costigan), actress. C. made first stage appearance at age of nine, at Haverstraw, New York, in *Daniel Boone*; appeared in *Peck's Bad Boy* (1890). By his early twenties he was appearing on Broadway and writing plays in which he took the chief part. Became famous in vaudeville in *The Four Cohans*. Acted in his own plays *Little Johnny Jones* (1904-6)

and *George Washington, Junior* (1908-7). Other plays of his were *The Wise Guy*; *The Governor's Son*; *Running for Office*; *Forty-five Minutes from Broadway*; *Popularity*; *The Talk of New York*; *Fifty Miles from Boston*; *The Man who owns Broadway*; *The Yankee Prince*; *The Little Millionaire*; *Hill-the-Trail Holiday*; *The Tavern*; *The Song and Dance Man*; *American Born*; *The Merry Malones* (musical play). He visited London, and among his comedies which were produced there were *Get-rich-quick Wallingford*, at the Queen's in 1913; *Broadway Jones*, at the Prince of Wales's, and *Seven Keys to Baldpate*, at the Apollo, in 1914; and *Baby Cyclone*, at the Lyric, in 1928. But he will probably be best remembered in this country for the patriotic song *Over There*, which he wrote for the Amers. in the First World War. In recognition of his patriotic service in composing that song and also the song *A Grand Old Flag*, Congress voted him a gold medal, which was presented to him by President Roosevelt at the White House in 1940. He wrote and composed hundreds of songs, many of which were known all over America and sung by millions. Films were made of some of his plays, and in 1932 he appeared on the screen in *The Phantom President*.

Cohen, Ernst Julius, Dutch (Jewish) chemist, b. 1869, at Amsterdam. Studied under Arrhenius in Stockholm, Moissan in Paris, and van't Hoff in Amsterdam. In 1898 he was prof. of chem. at Montreal, in 1901 he was at the Amsterdam Univ.; in 1902 he succeeded the famous van't Hoff at Utrecht Univ. In 1899 he discovered that tin exists in three allotropic forms, confirming Aristotle. He has pursued research into the allotropy of metals, and into piezochemistry. Also has written *Jacobus Henricus van't Hoff, his Life and Work* (1912).

Coherer, instrument used for detecting signals in the early days of wireless telegraphy. It consisted essentially of loosely packed particles which conducted an electric current only when under the influence of electromagnetic waves. On the passage of electric oscillations from the receiving circuits these particles (or metallic filings) 'cohered' and offered a lower resistance to the passage of current in a local circuit which included a bell, relay, or other device.

Cohesion, molecular force which keeps the particles of a body together and resists rupture. It is strongest in solids, weaker in liquids, and almost insensible in gases. It varies with the nature of the substance and with its temp. It is thought by some to be a specific force acting only at inappreciable distances, but Lord Kelvin has said that it involves no other force than the force of gravitation, and is proportional to the product of the masses concerned, and inversely proportional to the square of the distance between them. The C. of the particles of a solid body is due to the close contact brought about by the solidification from a liquid state, crystallisation out of solution, electrochemical deposition, etc. Great pressure

will cause two similarly constituted bodies to cohere; but as it is necessary to force the surfaces to fit each other exactly, more force must be used than that which, exerted in a contrary direction, would cause a rupture. Two smooth surfaces of the same substance, however, can be made to cohere with but little pressure. *Adhesion* usually refers to the attraction existing between the surfaces of dissimilar substances. *C.* In a liquid means the attraction between the particles in the interior of the substance; the adhesive forces at the surface bounding a liquid and some other substances are dealt with in *SURFACE TENSION* and *CAPILLARITY*.

Cohn, Ferdinand Julius (1828-98), Ger. botanist, who improved the microscope, and with it made far-reaching discoveries as to the growth of plant and animal cells. Made a special study of lower algae and fungi. He contributed greatly to the overthrow of the doctrine of abiogenesis or spontaneous generation, and made preliminary researches upon the value of bacteriology in infectious diseases. He may, indeed, be justly held to be the founder of bacteriology, and pub. sov. works on insect epidemics, infusoria, and plant diseases.

Cohoes, manufacturing tn. with water power from the falls of the Mohawk in the co. of Albany, New York, U.S.A. It is situated on the R. Hudson, on the Erie Canal, and possesses large cotton and woollen mills, and manufs. machines, pulp, and hosiery. Pop. 21,900.

Cohort, term used to denote a portion of a legion in the Rom. army. Ten Cs. made up a legion, which usually consisted of 6000 men. The first *C.*, sometimes numbering 1200, had charge of the standard of the legion.

Coif (Fr. *coiffe*, a cap), head covering, more especially the distinctive badge of the serjeant-at-law. It was at first a close-fitting cap of white lawn or silk, but upon wigs becoming commonly worn it was represented by a small black patch with a white border worn on the crown of the wig.

Coil, inductance, in which wire is wound round an iron case. *Induction C.* is the technical name for the small transformer used in a telephone box to separate the microphone direct current from the receiver. (See *ELECTRICITY*, *Electromagnetic Induction*.) *Choking Cs.* steady rapid fluctuations in alternating currents. *Resistance Cs.* offer definite resistance to the passage of current. *Search Cs.* carried by aeroplanes are an aid to landing in fog.

Coimbatore, dist. and tn. in the Madras presidency, India, with an area of about 7842 sq. m. To the W. lie the W. Ghats, and a branch of the same range forms the N. boundary. Salem and Trichinopoly are on the E., and on the S., Madura and Travancore. The dist. is well watered and fertile. Rice, tobacco, cotton, and sugar are grown. The chief tns. are C., Erode, and Coorer. The tn. has sev. high schools and an active trade. Pop. of tn. 66,000.

Coimbra: 1. Dist. of Beira, Portugal, with an area of 1499 sq. m. The soil is

fertile, millet and wine being the chief productions. Cattle are reared in large numbers. Pop. 411,600. 2. city of Portugal, and cap. of the dist. of C. It is situated on the r. b. of the R. Mondego, 24 m. from its mouth, 115 m. N.N.E. of Lisbon, and is noted as being the seat of the one univ. of Portugal, which was transferred from Lisbon in 1527. There are five faculties and 1400 students. The tn. library contains about 80,000 vols., and there are museums and laboratories. C. is an episcopal see and possesses two cathedrals. There are manufs. of earthenware, linen, and leather. Lamprey fishing is carried on. Pop. 28,000.

Coin, tn. in Málaga, Spain, about 20 m. W.S.W. of Málaga. It is situated in a dist. abounding in orchards, and is known as the garden of Andalusia. There are marble quarries near by. Pop. 12,500.

Coin, pieces of metal stamped with various devices, and intended to circulate as currency. See *CURRENCY*; *MINT*; *MONEY*; *NUMISMATICS*; *TRADESMEN'S TOKENS*.

Coining is in England, as in all civilised states, a prerogative of the sovereign power, and therefore the crime of counterfeiting the current coinage is severely punished. Under the old statutes it was made a form of treason. In 1861 the statutes relating to this offence were codified and unified for the whole United Kingdom by the Coining Offences Act, and this was further amended by the Counterfeit Medals Act of 1883. The Coinage Offences Act, 1936, consolidated without amendments in substance, the Acts dealing with coinage offences. The following offences are high crimes, punishable by penal servitude to the extent of life: counterfeiting or making coins to resemble or pass for the current coin of the realm; colouring, casing, or washing over any coins or metals with intent to make them pass for gold or silver coin; buying, selling, receiving, or passing counterfeit coin at a lower rate than its denomination imports; knowingly importing counterfeit coin; making, mending, buying, selling, possessing, or conveying out of the Royal Mint any *C.* instruments. The clipping or lightening in any other manner of current gold and silver coin is a crime punishable with not more than fourteen years' imprisonment. The following offences are punishable with not more than seven years' imprisonment: unlawful possession of clippings, etc., taken from gold and silver coin; unlawfully making, mending, buying, selling, or possessing instruments for so doing; buying, selling, or bringing into the country such counterfeit coin at a lower value than its denomination imports; possessing three or more counterfeit gold or silver current coins with intent to utter them. Various minor offences are punishable with imprisonment or penal servitude for varying periods all under seven years. Such are the exportation of counterfeit current coin; the counterfeiting of foreign coinage, and the knowingly uttering counterfeit current copper coinage.

Coining, see also **FORGERY**.

Colins, **Foreign**, see **WEIGHTS AND MEASURES**, *Table of Foreign Montes*.

Cofir, fibrous covering of the coco-nut. Stripped off lengthwise, the fibres are manufactured into matting, ropes, cables, etc. It is prepared as follows. After soaking for months in water, until soft, the fibres are beaten to remove the superfluous matters, and then are spun into yarn and woven into articles or twisted into cables. Compared with hempen cables these are buoyant and of great strength and elasticity.

Coire, or **Chur**, the cap. of the canton of the Grisons, Switzerland, still contains many fifteenth- to seventeenth-century buildings. The cathedral of St. Lucius was begun in 1178. The episcopal court occupies the site of the Rom. *castrum*, which commanded the roads leading over the passes. The tn. is mentioned as a bishopric in 452, and was freed from the bishop's rule in 1464. The townsmen embraced the Reformation in 1524. The painter Angelica Kauffmann (1741-1807) was born here. Although C. is 1952 ft. above the sea, the climate is very mild. Pop. 17,000.

Cojedes, state of Venezuela. Pop. 83,000. Cap. San Carlos. Pop. 7000.

Cojutepeque, tn. of San Salvador. Central America, cap. of Cuscatlán dept., 15 m. N.E. of San Salvador. It is situated near the volcano and lake of the same name. Has potteries, weaving and cigar trade, and large market. Pop. 17,000.

Cokayne (or **Cokain**), Sir Aston (1608-1644), poet, was b. in Derbyshire, and belonged to an old Derbyshire family. He was educated at Trinity College, Cambridge. Although rather a dissolute man, he was a strong Royalist, and stood firm to his religious opinions. There were four issues of his poems and plays: *Small Poems of divers Sorts*, embracing, besides poems, a *Masque . . . presented on Twelfth Night*, 1634, and *The Obstinate Lady* (a comedy) (1658); a reissue in 1659, entitled *A Chain of Golden Poems*, etc., including *Trappolin Creduto Principe*, or *Trappolin suppos'd a Prince* (an It. tragi-comedy); a third issue in 1662, entitled *Poems*, etc., to which was now added *The Tragedy of Ovid*; and a fourth (reissue) in 1669.

Coke, Sir Edward (1552-1634), lawyer, came of a Norfolk family and was b. at Mileham in that co. He was educated at Norwich School and Trinity College, Cambridge, and was called to the Bar in 1578. The following year he distinguished himself in the libel case *Cromwell v. Derby*, and soon after in *Shelley's case*, having been previously made reader of *Lyon's Inn*. In 1582 he married Miss Bridget Paston, receiving with her a large fortune, and in the course of a few years sev. very important appointments were conferred on him. In 1586 he was made recorder of Norwich, in 1592 reader of the Inner Temple and solicitor-general, in 1593 Speaker of the House of Commons, and in 1594 attorney-general, thus being successful over his rival, Bacon, who wished to be appointed to the last-named

office. In 1606 he became chief justice of the common pleas, and in 1613 chief justice of the king's bench. In 1598 C.'s wife d., and he married Lady Hatton, granddaughter of Cecil, Lord Burghley. This was his second success over Bacon, for the latter was refused by Lady Hatton. The marriage, however, proved a very unhappy one for C. Just after this he conducted sev. important trials, among them that of Sir Walter Raleigh, but this one does not redound to his credit, as his treatment of that nobleman was both discourteous and full of injustice. In his office as chief justice of the common pleas C. maintained a vigorous defence of the law, for when the eccles. courts wished to claim more power and King James was



SIR EDWARD COKE

inclined to support them, he was on the defensive, and was successful in winning the king over on his side. He was also opposed to James on sev. other occasions, as he had no exaggerated notion of the royal prerogative. He firmly estab. the fact that the king could neither make laws without the consent of Parliament, nor could he declare any action to be an offence unless it were contrary to the law of the land. In the case of *Peacham*, who was accused of high treason, C. found himself in opposition to the king, this time with very little result. The opposition was continued by C.'s declining to refer to the king difficult cases in the court of chancery, and also in his contesting James's right to grant common laws, and in refusing to await the king's pleasure with regard to that granted to the bishop of Lichfield. For these reasons he was dismissed from his office in 1616. He again took up public duties in 1620, when he was returned to Parliament as member for Liskeard. During this part of his career he concerned himself mainly with the reform of abuses. He opposed the marriage of Charles with the Infanta of Spain, and was insistent on freedom of

speech for Parliament, thus alienating himself more and more from the king. After the death of James O. vigorously opposed Charles I. in his illegal means of obtaining money. He was also instrumental in drawing up the Petition of Right, and at the time of the Grand Remonstrance he pointed out in Parliament the evil caused in the country by the duke of Buckingham. After this C. spent his time in retirement at Stoke Poges, where he d. See Lord Birkenhead, *Fourteen English Judges*, 1926.

Coke, Thomas (1747-1814), Methodist bishop, b. at Brecon and studied at Oxford. He made the acquaintance of John Wesley, and commenced a series of open-air services that led to his dismissal from his Somerset curacy. Allied then to the Methodists, he became president of the Eng. conference, and later superintendent (bishop) of the Methodist societies in America, whither he made sev. voyages between 1784 and 1803. He pub. a *History of the West Indies* (1808-11), and jointly with Henry Moore, a life of Wesley in 1702.

Coke, Thomas William, see LEICESTER, EARL OF.

Coke, form of fuel composed of the carbonaceous substance left when coal is heated in a confined space. The volatile constituents of the coal are thus lost, and a hard, brittle, porous substance, with a slight metallic lustre, is left. It does not soil the fingers when touched, and burns with an intense heat and no smoke. These advantages, together with the facts that it is relatively free from sulphurous fumes and does not produce sparks, render it a valuable fuel for use in metallurgy and various industrial operations. C. is produced in the manuf. of coal-gas as a by-product, but this variety is of inferior quality, and the regular method of manuf. is by means of either mounds or ovens. In the former case a caking variety of coal is stacked in a large heap round an open chimney covered with wet C.-dust, and fired from above. When all smoke has ceased to appear, the air-holes are closed, and the mound is extinguished and cooled with water. The same principle is employed in closed ovens, which, however, yield a better quality with a considerable saving of time and expense. See also CARBONISATION.

Colao, tn. of Polwarth co., Victoria, Australia, on Lake C., 50 m. S.W. of Geelong. Coal, iron, and limestone are found near. Pop. 5000.

Cola di Rienzi, see RIENZI.

Colard, Mansion, first printer of Bruges, d. in 1484. His pubs. consisted of twenty Fr. and one Lat. work.

Colban, Adolphe Marie (1814-84), Norwegian authoress, née Schmidt, whose works were very widely read in their day. Best known among them are *Lærerinden* (1869); *Tre nye Noveller* (1875); *Jeg lever* (1877); *Thyra* (1882).

Colberg, see KOLBERG.

Colbert, Jean Baptiste (1619-83), Fr. statesman, b. at Rheims. Probably spent some of his youth in the house of a banker. He was entrusted by Mazarin

with his most important commissions. In 1659 he began his scheme for the reform of finances, and at the same time his letter to Mazarin contained a bitter attack on Fouquet, which led to a quarrel finally settled by Mazarin. In 1661 he succeeded Mazarin, and in 1668 became minister of marine and also minister of commerce and of the king's household, having previously been made controller-general. He had, in fact, almost supreme power over the financial affairs of the country. The finances of the country at this time were in a deplorable state, and C. reformed the whole system by doing away with extortion and unjust taxation, and by revising the method of collection.



JEAN B. COLBERT

Engraving after a painting by V. Mignard.

He next turned his attention to commerce, and did all that he could to increase the manuf. of the country instead of importing manufactured goods from abroad. The lines on which he worked, however, were exceedingly narrow, and did not make for progress. The inspection as to quality and measure of articles was most rigid, and the protective tariffs hampered the trade considerably. Credit is due to C., for his reconstruction of the Fr. Navy. He not only increased the number of men and ships, but also reconstructed Toulon and Rochefort, and fortified Dunkirk, Brest, and Havre. He turned his attention also to learning and art, being the founder of the Academy of Science and of the Observatory, the reorganiser of the Academy of Architecture and of the Botanical Gardens, and he encouraged scholars and artists from all parts of Europe. He had public buildings and monuments set up in Paris, and added pictures to the Louvre. He experienced great difficulties from Louvois, his rival, who had control of the war dept. Peace was necessary to C. so that his reforms

might be effectual, and in his later days he carried on a constant struggle to cut down the king's extravagances to this end. Louis XIV., however, transferred his favour to Louvois, and C.'s influence gradually declined till he died, stricken with a fever which had attacked him at intervals for sev. years before his death. *See* life (1846) by Pierre Clément, who, in 1861, also pub. the first of the nine vols. of the *Lettres, instructions, et memoires de Colbert*. The historical introductions to each of these vols. were pub. by Mme Clément in 1874.

Colborne, Sir John, first Baron Seaton (1778-1863), Brit. general, who took part in the battle of Corunna. He afterwards fought with Wellington, and was wounded at Ciudad Rodrigo. He also took part in the battle of Waterloo, 1815. In 1838 he put down the rebellion in Canada.

Colburn, Henry (d. 1855), publisher, produced the *New Monthly Magazine* and *Universal Register* (1814); *Keely's Diary* (1818); *Pepys's Diary* (1825); and *The United Services Magazine* (1829). He also pub. the *Modern Standard Novels* (1835-1841). Was in partnership with Richard Bentley, 1830-32, and retired from business in favour of Messrs. Hurst & Blackett.

Colburn, Zerah (1804-40), mathematical prodigy, b. in Vermont, U.S.A. In his earliest years he displayed such extraordinary powers of rapid calculation that from 1810 he was publicly exhibited by his father, and came to Great Britain and France. He studied from 1816 to 1819 at Westminster School at the expense of the earl of Bristol. On the death of his father he returned to America, and was from 1825 prof. of languages in Norwich Univ., Vermont.

Colby, Frank Moore (1865-1925), Amer. editor, b. in Washington, dist. of Columbia; son of Stoddard Benham C. Graduated at Columbia Univ., 1888. Held appointments in connection with hist. and economics in Columbia Univ. and Amherst College; and was prof. of economics at New York Univ., 1895-1900. On the editorial staff of *Johnson's Cyclopaedia* and *Nelson's Encyclopaedia*. Ed. *International Cyclopaedia*, 1898 ed., and *International Year-Book*, 1898-1902. Ed. *New International Encyclopaedia* from 1900; revision 1913-16, and supplement 1923-24; also *New International Year-Book* from 1907. He wrote *Outlines of General History* (1900); *Imaginary Obligations* (1904); *Constrained Attitudes* (1910); and *The Margin of Hesitation* (1921); *Essays* (1924).

Colby, Thomas Frederick (1784-1852), Brit. major-general, who was connected with the ordnance survey, of which he became director.

Colchagua, prov. in Chile, extending from the Cordilleras to the Pacific Ocean. Its cap. is San Fernando (pop. 10,100). The prin. crops are cereals; wine and cattle are produced. Pop. 296,000. Area 3856 sq. m.

Colchester, Baron. This title was borne by the family of Abbot from 1817 to 1919, when the third baron d. Charles Abbott,

the first baron, was Speaker of the House of Commons from 1802 to 1817.

Colchester, municipal bor., mkt. tn. and riv. port of Essex, England, 52 m. from London on a main line of the E. div. of Brit. railways. It stands on the R. Colne, which is navigable by vessels of 150 tons to the Hythe, 1 m. S.E. and 9 m. from the sea. The recorded hist. of C., which is the oldest recorded tn. in Great Britain, goes back to the coins of Cunobellinus (Cymbeline), who reigned from 5 B.C. till his death, A.D. 43. These are inscribed C A M V for Camulodunum, the Brit. name of C. (meaning the hill or fort of Camulos, god of war). On the Rom. invasion in the year 43 Camulodunum became the headquarters of the Romans. It was burnt and devastated by Boadicea in A.D. 61, when that queen led a rising of the Trinobantes and Iceni against the Romans. Soon afterwards the Rom. Wall was built to protect the tn. A mile and a half or more of this wall is left. It can be seen to advantage on Balmerne Hill and at the Balmerne Gate, the old Rom. gateway at the top of the hill; also at the steps leading up to the church of St. Mary-at-the-Walls in Balmerne Lane. The Rom. occupation of C. lasted till about the year 367. The importance of the settlement is shown by the enormous quantity and rich variety of Rom. remains found in C., and exhibited in the C. and Essex museum, the Brit. Museum, and elsewhere. Historical and numismatic evidence make it clear that Camulodunum, the cap. of Cunobellin, or Cymbeline, must have been in the C. area. (*See Camulodunum: First Report of the Excavations at Colchester, 1930-39, Society of Antiquaries of London, 1948.*) The castle is, of course, the most important of the tn.'s anct. monuments. It dates from 1070 and its keep is the largest Norman keep in the country. There are numerous other buildings of historical interest, the best known being the ruins of the twelfth-century St. Botolph's Priory church, situate off St. Botolph's Street, and the gateway of the eleventh-century monastery of St. John, on St. John's Green.

There are two museums, one being housed in the castle keep, containing chiefly, though not exclusively, Romano-Brit. antiquities. It is one of the finest collections of its kind in N. Europe. On the ground floor are miscellaneous objects, including Rom. tessellated pavements found in C., a re-erected Tudor fireplace, and various medieval and later exhibits. The galleries on the first floor are devoted to a great collection of Rom. remains mostly found in C. The other museum is housed in the Holly Trees mansion, an early Georgian mansion in close proximity to the castle. The objects include noteworthy collections of 'Bygones,' chiefly domestic articles of the seventeenth, eighteenth, and nineteenth centuries, carved chests, samplers, exhibits connected with agric. industries, costumes, china, furniture, and many old prints and maps; also a valuable collection of Peruvian antiquities and various oriental exhibits. A valuable library, especially

intended for students and presented by the Rev. Dr. G. H. Rendall, a former headmaster of Charterhouse, is on the first floor.

C. is a municipal bor., the earliest charter being that of Richard I. (1189), and for parl. purposes is in the C. div. of Essex. Corn and cattle markets are held and the chief industries now carried on are engineering and the manuf. of clothing. The Colne oyster fishery, which produces the Pyefleet oysters, belongs to the council, and C. is also noted for its roses. Among the more modern buildings should be mentioned the tn. hall, the co. hospital, and the new public library. The latter building was completed in 1939, and was used for emergency purposes during the war. Pop. (1931) 48,701.

Colchicum, genus of Liliaceæ, containing over two dozen plants, which grow wild in Europe, Asia, and Africa. In Britain it is represented by the well-known *C. autumnale*, the meadow saffron or autumn crocus. The large pale purple flowers spring up in the autumn without any leaves, and expand with their orifice, together with the anthers and stigmas, just above the surface of the soil while the tubular part, with the ovary and filaments, remains below ground and is thus protected from cold. The ovary becomes mature before the stamens, and pollination is effected by means of bees. In the springtime the foliage makes its appearance in the form of an erect tuft of broad, oblong, shining, sheathing leaves and the capsular fruit is elevated above the soil by its lengthened footstalk. The corm of the C. is irregularly egg-shaped, and covered with a dry, brittle, brown skin; in size it compares with a hazel-nut or walnut, and it consists of a white fleshy succulent substance. When fresh, it has a nauseous, radish-like odour, when dried there is no odour; the taste is sweetish-bitter, leaving an acrid sensation in the throat. Both corms and seeds abound in a stimulating, deleterious principle, and large quantities are annually consumed in the manuf. of various medicinal preparations. The C. acts as a diuretic and purgative, and when given in large doses is poisonous. It is most used in cases of dropsy, gout, and rheumatism. The bitter, poisonous, alkaloid 'colchicine' is obtained from *C. autumnale*, and this, heated with concentrated hydrochloric acid, produces colchic acid.

Colchis, in auct. geography, was a country in Asia, situated between the Caucasus on the N., Iberia on the E., Armenia on the S., Pontus on the S.W., and the Euxine on the W. It was noted in Gk. mythology as the home of all sorcery, the land of Medea and the Golden Fleece. Its inhab. were from earliest times engaged in the linen manuf. The modern prov. of Mingrelia and a part of Abasia correspond with the auct. C.

Cold, absence of heat. This being radiant energy, molecular movement is held to cease at -273° C., the temp. of absolute C. Helium is liquefied within $2\frac{1}{2}^{\circ}$ of this absolute minimum (see further under THERMODYNAMICS). In medical

practice C. applied to the body subdues pain, reduces inflammation and feverish temps., arrests bleeding, and stimulates by cold bathing. An attack of catarrh is generally called a C.

A C. (*Coryza*) indicates inflammation of the mucous membrane of the nose by which the secretion of mucous fluid is increased. It causes hoarseness, running at the nose, and sore throat. The condition of the person is made worse by the chilliness which accompanies the ailment and the general feeling of depression and feverishness. It is infectious and will spread throughout the household unless every care is taken. Quinine has a preventive value. A hot mustard bath with a hot drink of whisky and water, lemon or black currant juice, etc., and rest in a warm bed will also prove beneficial in the early stages. A C. in the head can best be relieved by inhaling menthol or Friar's balsam in boiling water, or by the use of a nasal douche. A C. in the chest should be treated by rest in bed in a warm room, by steam kettles, hot applications with thermogene wool, linseed poultices, etc., and by hot, demulcent drinks. A C. should never be neglected, since many ailments begin with what seems to be only a 'common cold.' It should be stopped before passing down on to the chest and inflaming the bronchial tubes. Chronic sufferers should consult a doctor, as vaccine inoculation may sometimes be indicated; or there may be some such cause as septic tonsils, or adenoids, which should be cut or enucleated. The feet may be bathed in hot mustard and water.

Cold Cream, or **Rose-water Ointment**, cooling dressing for the skin. It may be prepared by melting together 125 gm. of spermaceti, 120 gm. of white wax, 560 gm. of expressed oil of almonds, and then mixing in 190 gm. of stronger rose-water. A few grammes of sodium borate should be dissolved in the rose-water unless some other metallic salt of remedial properties is desired. The ointment constitutes a soothing application for chapped face and hands, abrasions, etc.

Colden, Cadwallader (1688-1776), was a Scot and a member of the medical profession. He went to America and practised medicine there, first in Pennsylvania and later in New York, and in 1781 he was made lieutenant-governor of that city. His chief works are *History of the Five Indian Nations depending on the Province of New York in America* (1727) and *An Explication of the First Causes of Action in Matter and of the Cause of Gravitation* (1745).

Cold Harbor, vil. of Hanover co. Virginia, U.S.A., 9 m. from Richmond, 2 m. from Chickahominy R. The battle of Gaines's Mill was fought near by (1863), the Federals, under McClellan, being defeated by the Confederates under Lee. There was another battle fought between Gens. Grant and Lee, 1864, considered indecisive, though the advantage was on Gen. Lee's side. Pop. 3000.

Coldingham, par. and vil. of Berwickshire, Scotland, $2\frac{1}{2}$ m. from Eyemouth, $1\frac{1}{2}$ m. from C. Bay. It has the remains

of a famous priory, founded in 1098 by Edgar of Scotland. Fast Castle, the Wolf's Crag of Scott's *Bride of Lammermoor*, is about 2 m. off. C. is 2 m. from St. Abb's Head, 3 m. from Reston junction. Pop. par. 2830, vil. 495.

Cold Storage, see under REFRIGERATION.

Coldstream (formerly Lennel, Leinhall), par. and burgh of Berwickshire, Scotland, 13 m. from Berwick, on the R. Tweed and the N.-E. Region railway. Smeaton's five-arched bridge (1763-68) crosses the riv., and near by is the famous ford of the Tweed, often crossed by Scotch and Eng. armies. It was once, like Gretna Green, a refuge for runaway couples. Pop. 2000.

Coldstream Guards, Brit. regiment in the foot-guards, forming part of the Household Brigade. It is the second regiment in age of the Brit. Army, the oldest being the Royal Scots. The C. G. were known first as Monk's Regiment, from Gen. Monk, who founded the regiment in 1660. They definitely received their name when given to Charles II. to form part of his household brigade. During the reigns of Charles II. and James II. detachments of the regiment served in Flanders, at Tangiers, and in Virginia, and under William III. it served at the siege of Namur, 1695. Some companies helped to hold Gibraltar in 1704-5 after its capture by Rooke. It served under Marlborough at Oudenarde and Malplaquet, under George II. at Dettingen, and under Abercrombie in Egypt in 1801. A string of battle honours for the Peninsula and Waterloo testify to its service under the great duke of Wellington. It next saw service in the Crimea 1854-1856, this being followed by the Egyptian campaign of 1882 and Suakin in 1885, and then the Boer war of 1899-1902. During the First World War it served with great distinction and gallantly upheld its proud motto, 'Nulli secundus,' seven V.Cs. being won. Five battalions served at various periods in France and Flanders, notably at Mons (1914), Zandvoorde near Ypres (1914), Neuve-Chapelle (1915), and in the later battles of Ypres, 1917. In the Second World War the C. G. fought in N.W. Europe and in Italy. As part of the Guards Armoured Div. in France in 1944 they were prominent in the passage of the Orne into the Caen plain in the battle of Normandy. Other units were in the Eighth Army (q.v.) which fought in numerous battles up the It. peninsula. The C. G. can be distinguished from other Guards by the white band round their hats and by the buttons on their tunics being grouped in pairs.

Coldwater, cap. of Branch co., Michigan, U.S.A. on Lake Shore and Michigan S. railway, 34 m. from Adrian and 103 m. from Detroit. It contains a court-house, high school, and state public school, and manufs. leather, furniture, Portland cement, liniment, and agric. implements. A riv. of the same name enters St. Joseph R., 12 m. from the tn., which stands on it. Pop. 7300.

Cold Water Test, or, more usually, **Hydraulic Test**, in engineering, is a pressure

test for totally enclosed vessels to determine their power of resistance. The vessel is filled with cold water, and the pressure progressively increased to twice the normal working pressure.

Cold Wave, sudden and general fall of temp., usually following a winter storm and caused by a cool wind blowing towards the equator. It generally lasts only for two or three days, and is common in U.S.A. In the E. United States C. Ws. from the N. plains often cause a fall of 18° F. or more, bringing the temp. below freezing-point. They cross the border between Lake Superior and the Rockies.

Cole, see RAPE.

Cole, George Douglas Howard (b. 1884), Eng. writer on economics, b. Sept. 25, and educated at St. Paul's School and Oxford Univ. Univ. reader in economics at Oxford. He is a leading authority on labour questions and economics in relation to industry. Vice-president of Workers' Educational Association and a member of the Economic Advisory Council. Pubs. include *Self-government in Industry* (1917); *The Payment of Wages* (1918); *Chaos and Order in Industry* (1920); *Workshop Organisation* (1923); *Labour in the Coal-mining Industry* (1923); *Organised Labour* (1924); *A Short History of the British Working-class Movement* (1925-27); *The Next Ten Years in British Social and Economic Policy* (1929); *Gold, Credit, and Unemployment* (1930); *What Marx really meant* (1934); *Principles of Economic Planning* (1935); *Socialism in Evolution* (1938); *British Working-class Politics, 1932-1914* (1941); *Fabian Socialism* (1943); *A Century of British Co-operation* (1945). Collaborated with his wife Margaret Isabel, nee Postgate (b. 1893), in detective stories, novels, etc., including *The Brooklyn Murders* (1923); *A Lesson in Crime* (1933); *Last Will and Testament* (1936); *Greek Tragedy* (1939); *Counterpoint Murder* (1941) also *Samuel*; *Butler* (1947).

Cole, George Vicat (1833-93), Eng. landscape painter, especially of Surrey and Thames scenes, was b. at Portsmouth, and from 1853 contributed frequently to the Royal Academy exhibitions. He was elected R.A. in 1880. 'The Pool of London,' which however, is not a characteristic specimen of his art, is in the Tate Gallery, London. See life by Chignell.

Cole, Sir Henry (1808-82), Eng. official, art critic, and editor, b. at Bath, and educated at Christ's Hospital. Appointed assistant keeper of the records, he helped to establish the Record Office. Did valuable service in promoting art exhibitions, especially the Great Exhibition (1851). He was a founder of S. Kensington Museum and later its director. He was also one of the founders of the National Training School, afterwards reorganised as the Royal College of Music, 1882. See *Autobiography* (1884).

Cole, Thomas (1801-48), noted Amer. landscape painter. He went from England to the U.S.A., 1819; from Ohio to New York, 1825. He travelled to London,

Florence, and Rome between 1829 and 1832. He aimed chiefly at historical or allegorical landscapes (for examples see New York Historical Society's rooms). Among his works are 'Views of the Catskills and White Mountains,' 'The Voyage of Life' (four pictures), 'The Course of Empire,' 'View of Mount Etna taken from Taormina,' and 'Kenilworth Castle.'

Cole, Timothy, Amer. wood engraver, b. in London, England, in 1852. In 1875 he began to work for the *Century Magazine* (then *Scribner's*). His work attracted widespread attention, and he was sent to Europe to make engravings after the old masters, which met with great success. He received medals at the Paris and St. Louis exhibitions.

Colebrooke, Henry Thomas (1765-1837), Sanskrit scholar, son of Sir George C., b. in London. His father, who was chairman of the E. India Company, secured his son a post in the company's service. During his residence in India C. made a close study of Sanskrit, publishing sev. books in this language, among them his trans. of Sir Wm. Jones's *Digest of Hindu Law* (1798). This led to his being appointed president of the bench in Calcutta. He was also made a prof. of Hindu law, and in return for this he wrote his Sanskrit grammar, pub. in 1805. He returned to London in 1814, and presented the India House with his Sanskrit MSS. In 1823 he helped to found the Royal Asiatic Society.

Colecotomy, in surgery, the name given to the operation of removal of part of the colon or large intestine, and the consequent reuniting of the severed ends, so as to complete the circuit. This course is rendered necessary in cases of tumour or stricture in the part.

Coleford, par. and mrkt. tn., 8 m. N.W. from Lydney, Gloucestershire, in the mining dist. of the Forest of Dean. The tn. hall was built in 1662. The Speech House, where the Verderers' Court is still held sev. times a year, is now an hotel. The court room possesses a musicians' gallery. Pop. urb. dist. and par. 2800; eccl. dist. 5000.

Colemanite, hydrated calcium borate, $\text{Ca}_2\text{B}_6\text{O}_{11} \cdot 5\text{H}_2\text{O}$, one of the chief sources of borax and boric acid. Important deposits are found in the S.W. of California. They are found in hot springs and lakes associated with volcanic activity.

Colenso, vil. and railway station, Natal, S. Africa, 70 m. from Pietermaritzburg, on R. Tugela, which is here spanned by a bridge. It was the scene of Buller's unsuccessful attempt to cross the Tugela, Dec. 1899, during the Anglo-Boer war, 1899-1902. A great power-station in connection with the electrical working of the Natal railway has been erected here. White pop. 600.

Colenso, John William (1814-83), bishop of Natal and a celebrated mathematician, b. in Cornwall. He was educated at Cambridge, where he was second wrangler in 1836. From 1838 he was assistant master at Harrow, and from 1842 tutor

at Cambridge. In 1846 he became rector of Farningham St. Mary, Norfolk, and pub. mathematical textbooks on arithmetic, algebra, and plane trigonometry. His *Village Sermons* appeared in 1853, in which year he was appointed bishop of Natal. He at once studied the Zulu language, and after a while prepared a grammar and dictionary, and trans. part of the Prayer Book and Bible. In 1861 he pub. his *Translation of St. Paul's Epistle to the Romans, commented on from a Missionary Point of View*, in which he set forth his objection to the doctrine of eternal punishment. His next work, *The Pentateuch and Book of Joshua critically examined* (1862-79), made him the apostle of the higher criticism, and provoked a storm of protest. His book was condemned by both Houses of Convocation as heretical (1864), and he was declared (Dec. 1863) deposed from his see by Bishop Gray of Cape Town. The Privy Council, however, declared the deposition null and void. Bishop Gray then publicly excommunicated him, and in 1869 appointed Dr. Macrorie bishop of Maritzburg, with authority over practically the same diocese. Later C. opposed the oppressive measures taken by the Boers and Cape officials against the Zulus, and the policy of Sir Bartle Frere during the Zulu war. He pleaded the cause of the chiefs Langalibalele and Cetewayo, and was regarded by the Zulus as their protector. Other works by him are *Ten Weeks in Natal* (1855), *The New Bible Commentary: Literally Examined* (1871-1874), *Lectures on the Pentateuch and the Moabite Stone* (1873), *Sermons*, (1873). See Sir G. W. Cox, *The Church of England and the Teaching of Bishop Colenso*, 1888.

Coleone, Bartolomeo, see COLLEONI.
Coleoptera (Gk. *κόλεος*, sheath, *πτερόν*, wing), order of insects known familiarly to us as beetles. The species have four wings; the front pair, the elytra, are hard and leathery, and when at rest they fit together closely over the hind wings, and a straight suture lies between them; the hind pair are used in flight and are membranous. The mouth parts are biting and have mandibles, the lower lip is not divided along the middle. The metamorphosis is complete, the larva is a grub and develops into a pupa which exhibits the external structure of the perfect insect. There are known to scientists about 150,000 species, of which over 3000 belong to Britain. See BEETLE.

Colepeper (or Culpeper), John (d. 1660), Eng. Royalist politician, first Lord C. He was a member of the Long Parliament (1640), siding against Strafford, supporting episcopacy, and opposing the Scottish demand for religious union. Privy Councillor and chancellor of the exchequer in 1642, he became Charles I.'s adviser, and fought for him at Edgehill. He accompanied the prince (later Charles II.) to France (1646), and supported him ever after. See Clarendon's life, and *History of the Rebellion*, 1641.

Coleraine, par. and tn. of Londonderry co., N. Ireland, on R. Bann, 4 m. from the sea. It is noted for linen manufs., and

has shirt and collar factories. There are also good salmon fisheries. Pop. 8000.

Coleridge, Derwent (1800-83), author and educationalist, son of Samuel Taylor C. He was ordained, and appointed master of Helston Grammar School, Cornwall, one of his pupils being Charles Kingsley. Here he pub. his largest work, *The Scriptural Character of the English Church*. C. was appointed first principal of St. Mark's College, Chelsea (1841), and did much to advance elementary education.

Coleridge, Hartley (1796-1849), son of Samuel Taylor C., was b. at Clevedon, Somersetshire. He early showed uncommon gifts and a temperament still more remarkable. He is the subject of two passages in his father's poems, *The Nightingale* and *Frost at Midnight*, and of an exquisite but painfully prophetic address from Wordsworth, who was his lifelong friend. After the separation of his parents, he was brought up in Southey's family at Greta Hall, being educated chiefly at Ambleside, where he was judged of sufficient intellectual promise to justify a univ. career. Urged by Southey, his well-to-do relatives sent him to Oxford. Intensely sensitive, impatient of control, shy and awkward, of a somewhat bizarre appearance, and infirm of will, Hartley got into trouble with the college authorities, and lost an Oriel fellowship through intemperance. He received a gift of £300 from the college, but the blow was intolerable, and left him for the rest of his life despondent, self-reproachful, and lacking in concentration. After two ineffectual years in London, Hartley returned to the Lake country, where he made two widely separated attempts at school-teaching. In the interval (c. 1830) he lived for some time at Leeds in the family of F. E. Bingley, a publisher, with whom, according to a contract, he produced a biographical work on *Lives of Illustrious Worthies of Yorkshire* (1835), a part of the *Biographia Borealis* or *Lives of Distinguished Northerners*, previously pub. in 1833. He is, however, best known for his verse, which, if lacking in power, is singularly fine in mood and happy in expression. His sonnets are among the most perfect in the language. From 1838 Hartley lived at Grasmere, spending his time in study and reverie. His chief literary effort was an ed. of Massinger and Ford (1840), including valuable biographies of the dramatists. He d. of bronchitis, and was buried in the place chosen for him by Wordsworth, who was laid beside him a year later. Four vols. of his prose and poetry were ed. by his brother Derwent (1851). As a critic Hartley is delicate and suggestive; as an essayist quaintly humorous, resembling Charles Lamb; and in conversational powers, according to tradition, second only to his father. See *Poems*, with a memoir by his brother, D. Coleridge, 1851; E. L. Griggs, *Hartley Coleridge, his Life and Work*, 1929; E. Blunden, *Coleridge the Less*, 1931.

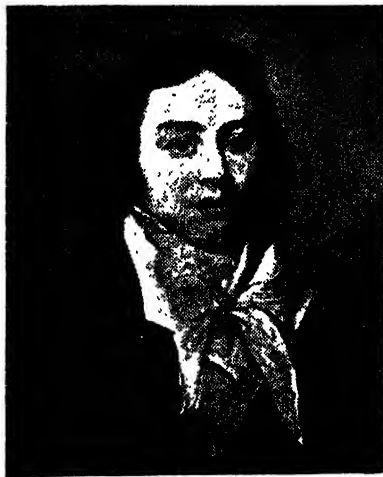
Coleridge, Herbert (1830-61), philologist, son of Henry Nelson and Sara C., was b. at Hampstead. In 1853 he began

practising as a chancery barrister at Lincoln's Inn. His leisure hours he devoted to philological studies—Sanskrit, the N. tongues, and particularly the Icelandic language and literature. In 1857 he was elected a member of the Philological Society, to which he contributed two papers. The society was planning a supplement to the standard dictionaries of Johnson and Richardson, which soon developed into a scheme for a complete new Eng. dictionary. C. was appointed honorary secretary of a special committee 'formed for the purpose of collecting words and idioms hitherto unregistered.' His new duties, for which he was admirably fitted, practically constituted a general editorship of the work; the results of his researches are embodied in his *Glossarial Index to the Printed English Literature of the Thirteenth Century* (1859), which he describes as the foundation stone of the proposed dictionary. The scheme developed into the *New English Dictionary* (Clarendon Press).

Coleridge, Sir John Duke, first Baron Coleridge (1821-94), Eng. jurist, son of Sir John Taylor C., was b. at Ottery St. Mary. Among his friends and contemporaries at Balliol were Archbishop Temple, Matthew Arnold, Arthur Clough, and Principal Shairp. He was called to the Bar in 1846, and soon gained practice, thanks to his musical voice, his eloquence (which earned him the nickname of silver-tongued C.), and his powers of persuasion. He became recorder of Portsmouth, Q.C., and M.P. for Exeter, as a Liberal, from 1865 to 1873. He supported the Bill for the abolition of religious tests in the univs., and took part in the debates on the disestablishment of the Irish Church. He became lord chief justice of England in 1880. His chief forensic triumph was in the famous Titchborne case, his speech for the defendant lasting twenty-three days. He wrote sev. papers on legal and literary subjects, and was the author of *in memoriam* notices of Matthew Arnold, Principal Shairp, and others. See E. H. Coleridge, *Life and Correspondence of Lord Coleridge*, 1904.

Coleridge, Samuel Taylor (1772-1834), Eng. poet and philosopher, was the son of the Rev. John C., vicar of Ottery St. Mary, Devon. He was only nine years old when his father d. A presentation to Christ's Hospital being obtained, he was a scholar there from 1782 to 1790, among his fellow pupils being Charles Lamb, with whom he formed a lifelong friendship. His love of the classics, especially Lat. authors, attracted the notice and esteem of the headmaster, Dr. Boyer, but strangely enough, for nearly two years (about 1787-88) he was so engrossed with theological and metaphysical studies that, as he himself says, 'everything else became insipid.' What is still more wonderful, he was relieved from this obsession by reading the sonnets of Wm. Lisle Bowles, a very popular poet of his day. He acquired a considerable knowledge of GK., and at Jesus College, Cambridge, which he entered in Feb. 1791,

he won the Browne gold medal for a Gk. ode on the slave trade. But the fatal desultoriness which clouded his after-life showed itself thus early; his studies were irregular, and his rooms were the constant resort of friends who came to enjoy his conversation on all kinds of subjects, especially politics, in which he took intense interest. In 1793, a friend of his being expelled for Unitarianism and sedition, he too left the univ., went to London, and being without resources enlisted in the 15th Dragoons under the name of



SAMUEL TAYLOR COLERIDGE
The painting by Peter Vandyke.

N.P.G.

Silas Tomkins Comberbatch, or Comberbacke. His life as a recruit not being happy, he wrote one day on the stable wall: 'Eheu, quam infortunati miserrimum est fulesco felicem!' (an adaptation from Boethius), which, attracting the notice of an officer, led to inquiries. Friends obtained his discharge, and he returned to college. Visiting Oxford in June, he made the acquaintance of Southey, and the two evolved a delightful scheme of pantisocracy, suggested by certain visionary Fr. philosophers. An ideal community was to be estab. on the banks of the Susquehanna, where brethren (and sisters) should dwell together in altruistic unity. But the colony was never founded. The two friends also collaborated in writing *The Fall of Robespierre*, a drama full of bombastic rhetoric, which was pub. about the time that C. finally left Cambridge, without a degree, towards the end of 1794. He next delivered in Bristol a course of political lectures, very Jacobinistic, and exceedingly virulent in their attacks on Pitt. He also wrote some poems, pub. by his

friend Joseph Cottle, the Bristol bookseller (to whose reminiscences we owe the account of C. in these years), which, while containing some promise of future distinction in style, were often weak, conventional, and, as even their author allowed, turgid. In Oct. 1795 he married Miss Sara Fricker, whose sister Edith soon after became Mrs. Southey. He settled at Clevedon for a short time, but returned to Bristol. He was soon tired of Bristol, and went to Nether Stowey, where he met Wordsworth. C.'s marriage was an unfortunate one; his wife, though an excellent woman, being incapable of affording him intellectual and spiritual companionship, or the support which his moral weaknesses unhappily required. Projecting in 1796 a paper to be called the *Watchman*, which was to be a Herald of Truth, and, to avoid the stamp-tax, was to appear every eighth day, C. started off on a tour to canvass for subscribers, preaching Unitarian sermons as he went, probably the strangest canvasser ever seen. His adventures, as told in his *Biographia Literaria* (1817), are very amusing. The *Watchman* appeared, reached its tenth issue, and died a very natural death. Within the next two years he wrote the *Ancient Mariner*, the first part of *Christabel*, *Kubla Khan*, the *Ode to France*, in fact nearly all his finest poems. The first-mentioned was included in the *Lyrical Ballads* (1798), a vol. planned by the two poets in conjunction. C. was to deal with the supernatural, Wordsworth with subjects of everyday life; the *Ballads*, however, contained only a few pieces by the former. The little vol. was very ill received. Among other notices, the *Monthly Review* spoke of the *Ancient Mariner* as 'the strangest story of a cock and a bull that we ever saw on paper.' It may be observed also that nearly twenty years later, when *Christabel* and *Kubla Khan* appeared, the same *Monthly Review* sagely remarked: 'That so much superior genius should be corrupted and debased by so much execrable taste must be a subject of sincere lamentation to every friend of poetry.' In 1798 Josiah and Thomas Wedgwood allowed him £150 per annum on the implied condition that he should abandon preaching (he had accepted a Unitarian ministry in Shrewsbury) and devote his time to literature. His revolutionary enthusiasm had been disillusioned by the course of events in France, and, desirous of studying Ger. philosophy, he spent about nine months at Ratzelburg and Göttingen, mastering the language, attending the lectures of Prof. Blumenbach, and enjoying glorious hours of oratory and disputation among his fellow students. Returning to England in 1800, he produced his excellent translation of *Wallenstein*. This sold so badly that the publishers, Messrs. Longman, disposed of the greater part of the ed. as waste paper. During this year the *Morning Post*, which had already pub. his *Ode to France* and other pieces, engaged him to write a series of political articles. His articles appeared irregularly

for two years, and then ceased. In the summer of 1800 he removed with his family to Greta Hall, Derwentwater, to be near Wordsworth, who had removed there. But he had been a frequent sufferer from rheumatism ever since boyhood, and the Westmorland climate affected him severely. In the spring of 1801 he began to take opium to relieve his pain; the habit rapidly increased, and, as De Quincey says, 'killed him as a poet.' He became restless and miserable, doing little work, but projecting grandiose schemes which all died in thinking, such as that for an immense *Bibliotheca Britannica*, outlined by him in a letter to Southey, Aug. 1803. Friends came to his assistance; Southey took Greta Hall off his hands, Wedgwood, Wordsworth, and others were full of kindness, and in 1804 he received an invitation to Malta, where he had barely arrived when he was invited to become secretary to the governor, Sir Alexander Ball, a position which he filled with the greatest capacity. This appointment he held for ten months, but his health did not improve, and he went on to Naples and Rome. About midsummer 1806 he was perturbed by a rumour that he was in danger from emissaries of Bonaparte, on account of his anti-Napoleonic essays in the *Morning Post*. This story has been ridiculed, but it so impressed C. that he speedily departed from Leghorn, taking passage in an American ship. Arriving home safe, but miserably broken in mind and body, the record of his next ten years is a painful story of suffering, weakness, and vacillation. Estranged, though not altogether separated from his wife, he moved from place to place, sometimes alone, sometimes with his family. At Bridgewater in 1807 he met for the first time with De Quincey, who was so impressed that, through Cottle, he sent C. an anonymous gift of £300. A series of lectures begun in London, Jan. 1808, on 'Poetry and the Fine Arts,' was a failure, and it is not quite clear how he got through the year, but in 1809 he started a magazine, the *Friend*, under such impossible conditions that its life of eight months was remarkable for length rather than brevity, yet it contained some of C.'s finest prose. Some lectures on Shakespeare and other poets were, however, successful, and he wrote regularly for the *Courier* (1811-12), while his play *Remorse* was well received at Drury Lane. Nevertheless he was continually in pecuniary difficulties; opium had wrecked him morally and physically, and at one time his family was left almost entirely on the hands of Southey and a few other friends. It was now recognised that to give money to C. himself was merely to furnish him with the means of self-degradation. In 1814 he was taking two to three quarts of laudanum per week, or even more, and he had not sufficient will-power left to break off the habit. From 1816 to 1819 he lived with his friend Morgan at Caine, and finally was persuaded to put himself under the charge of a medical man, Mr. Gillman of Highgate, as a resident patient. He could not

possibly have been in better hands; the fatal vice was gradually subdued, a warm attachment grew up between doctor and patient, and Mr. Gillman's house was C.'s haven of safety, which he seldom left during the rest of his life. While he was at Caine he prepared for the press *Christabel and other Poems* (1816), written nearly twenty years before, and other works followed at intervals, including *Sibylline Leaves* (a revised reprint of his poems with a few additions), *Lay Sermons*, and the *Biographia Literaria* (1817). Fourteen literary lectures, delivered in 1818, were successful in every way, and a remarkable account is given by Mr. Gillman of an extra one, delivered extemporarily, the subject, 'The Growth of the Individual Mind,' being given to the lecturer at the last moment. The discourse, says Mr. Gillman, was 'brilliant, eloquent, and logically consecutive,' a wonderful achievement. Unfortunately few of his lectures have been preserved except in the shape of rough notes, but these and his *Literary Remains* prove him to have been one of the greatest poetical, and especially Shakespearean, critics. *Aids to Reflection* appeared in 1805, *Church and State* in 1830, but his finest prose work, *Confessions of an Inquiring Spirit*, was pub. posthumously in 1840. He began life as a warm supporter of the Revolution, and his first vol. of verse emphatically proclaimed his democratic enthusiasm. But disillusion soon came and, like his friend Wordsworth, he turned, politically, to Conservatism. With Wordsworth, however, a strong interest in concrete humanity outlived the chaos of his early hopes. C. however, while always interested in the general affairs of the nation, lacked Wordsworth's intense sympathy with individual men and women. This tendency was to live among abstractions, a tendency intensified by his application to metaphysics and theology. As a philosopher he founded no school, yet exercised a great energising and spiritualising influence on Eng. thought. As a poet he is *sui generis*. In his theory of poetry he stressed the æsthetic quality as the primary consideration, and regarding the language of poetry, he concurs with Wordsworth's 'remonstrance in behalf of truth and nature,' though he entirely rejects his special theories. C.'s *Ancient Mariner*, *Christabel*, and *Kubla Khan* stand by themselves, pictures from magic realms, lit with 'the light that never was on sea or land,' while the metrical theory on which *Christabel* is constructed was the beginning of a new era in Eng. poetry, helping perhaps more than any other single agent to break the fetters of eighteenth-century correctness and monotony. Heartily abused at first, it soon found disciples, among others Scott and Byron. C.'s prose style is brilliant and profound, but diffuse. Hazlitt has well characterised it in the following mischievous paragraph: 'One of his sentences winds its "forlorn way obscure" over the page like a patriarchal procession with camels laden, wreathed turbans,

household wealth, the whole riches of the author's mind poured out upon the barren waste of his subject. The palm-tree spreads its sterile branches overhead, and the land of promise is seen in the distance.' As a conversationalist C. was unrivalled, fascinating all who met him. His personal appearance has been described by many of his friends, including Dorothy Wordsworth, De Quincey, and Southey, and mostly their descriptions agree. Southey says that the power of his eye, forehead, and brow was astonishing, but that nothing could be more imbecile than the rest of his face. C. himself says to Thelwall (in 1796): 'My face, unless when animated by immediate eloquence, expresses great sloth, and great, indeed, almost idiotic, good nature. 'Tis a mere carcase of a face, fat, flabby, and expressive chiefly of inexpression. Yet I am told that my eyes, eyebrows and forehead are physiognomically good' (*Letters*, ed. E. H. Coleridge, No. 64). In 1797, Dorothy Wordsworth in describing him speaks of the plainness of his features, but adds: 'If you hear him speak for five minutes you talk no more of them.' And even in his decrepitude Carlyle speaks of him as 'the most surprising talker extant in this world. See J. D. Campbell, *Samuel Taylor Coleridge*, 1894; Sir A. T. Quiller-Couch, *Coleridge*, 1918; H. L. A. Fausset, *Samuel Taylor Coleridge*, 1926; J. H. Muirhead, *Coleridge as Philosopher*, 1930; Sir E. K. Chambers, *Samuel Taylor Coleridge*, 1938.

Coleridge, Sara (1802-52), daughter of Samuel Taylor C., was b. at Greta Hall, near Keswick, where she lived under the care of Southey and in the frequent society of Wordsworth. She pub. (1821) an excellent trans. of Dobrizhoffer's *Lat. Account of the Abipones*, an equestrian people of Paraguay, and also trans. the *Memoirs of the Chevalier Bayard* (1825). Her *Pretty Lessons in Verse for Good Children* appeared in 1834, and *Phantasmion*, an imaginative fairy tale, in 1837. In 1843 her husband, Henry Nelson C., d. and she continued his task of editing and annotating her father's works. She left a son and a daughter, who pub. *Memoir and Letters of Sara Coleridge*, 1873.

Coleridge-Taylor, Samuel (1875-1912), musical composer of Anglo-African descent, b. in London. His father was a native of Sierra Leone, his mother an Englishwoman, and he was brought up under Eng. influences. He distinguished himself at the Royal College of Music, winning the composition scholarship in 1893, and studying under Villiers-Stanford till 1896. He organised a series of successful orchestral concerts at Croydon, and wrote for the Three Choirs festivals and the Birmingham and Leeds festivals. His first real recognition as a composer was when Elgar recommended his name to the Gloucester Festival committee, which resulted in the composition and performance of his orchestral *Ballad in A minor*. In 1898 his choral-orchestral *Hiawatha's Wedding Feast* was performed at a concert of the Royal

College of Music. After this, notwithstanding continued difficulty in making an adequate income, his reputation was estab. with the remainder of his trilogy, namely *The Death of Minnehaha* (1899), and *Hiawatha's Departure* (1900). Other works include *The Blind Girl of Castel-Cuillé* and *Meg Blane*; *A Tale of Old Japan* (1911), a cantata; *The Atone-ment*, sacred cantata; works for orchestra, for chamber combinations; Negro melodies for piano; incidental music for plays; and songs. His early death is to be deplored, as it is probable that his full development had not been attained (Scholes).

Coleroon River, N. branch of the Cavery (Cauvery or Kaveri) R., India, near its delta. It enters the bay of Bengal at Devicotta, 24 m. from Tranquebar. For some way it forms a boundary between the Madras dists. of Tanjore and Trichinopoly.

Coles, Cowper Phipps (1819-70), Eng. naval architect and officer, who served at Sebastopol with distinction, 1854, becoming captain, 1856. He invented shot-proof rafts of floating batteries, and was keenly interested in the construction of turreted ships. His claim to be the originator of the *Monitor* type of ironclads must be yielded to Ericsson and others. C. was drowned in the capsizing of the *Captain* in a gale off Finisterre.

Colesberg: 1. Dist. of N. Cape Colony. 2. Also cap. of above, 57 m. from Middelburg, 142 m. from Bloemfontein, with eight churches and synagogues. It is high, dry, and a health resort, and has sulphur springs. It was the scene of active operations in the Anglo-Boer war, 1899-1902. Pop. white 1000, native 1000.

Coleseed, see RAPE.

Coleshill, mkt. tn. and par. of Warwick, England, Tamworth div., 8 m. from Birmingham, on the London Midland Region railway, and R. Cole. Pop. 3000.

Colet, John (d. 1519), dean of St. Paul's, was probably b. in 1467. He was educated at Oxford, where he took his M.A. degree and had two or three benefices conferred on him when he was quite young, as this was the custom for those destined for a clerical career. About 1493 he made a tour on the Continent, where he studied law and literature, and it is said became acquainted with Savonarola. In 1496 he returned to England, and was for a time resident in Oxford, where he lectured on St. Paul's epistles. In 1498 Erasmus was in Oxford, and he and C. then became friends, and in 1505 C. was made dean of St. Paul's, thus becoming acquainted with Sir Thomas More. In the same year he inherited a fortune from his father, and with some of this money he founded St. Paul's School. In 1511 he made a pilgrimage with Erasmus to Canterbury, and the next year preached in Westminster Abbey when Wolsey was installed as cardinal. He d. four years later, and was buried in St. Paul's. It is rather for his learning and attitude to the advancement of knowledge than for his own writings that C.

has a place in the hist. of literature. The 'New Learning' or Humanism, as it was called to distinguish it from the old scholasticism, reached its zenith in the reign of Henry VIII., its supreme exponent, Erasmus, being the appreciative friend of the Eng. humanists, chief of whom were More, C., and Fisher. C., like More, was well grounded in Gk. erudition, and it was through his influence and that of More and Linacre that Erasmus applied himself to Gk.. C. in especial giving him a new understanding of theology and with it the hope of a peaceful reformation in the Church. The influence of C. and other humanists on education and culture steadily grew in this period, though its effects could not then begin to be felt in Eng. literature; but the knowledge of Gk. mythology and the inspiration of the Gk. classics, vital factors in the grandeur of Elizabethan literature, owed everything to the humanists, and the strongest personality among them all was that of Dean C. See J. H. Lupton, *Dean Colet, the Founder of St. Paul's; a Lecture*, 1887.

Colet, Louise (née Revoll) (1810-76). Fr. poetess, novelist, and miscellaneous writer. In 1834 she married the musician, Hippolyte C. Her first vol. of poems, *Fleurs du Midi*, appeared in 1836 and attracted considerable attention. On several occasions her poems were crowned by the French Academy. Mme C. was intimate with Cousin, de Musset, Villain, and Flaubert. Among her poems are *Les Chants des vaincus* (1840); *Charlotte Corday et Madame Roland* (1842); *La Religieuse* (1856). Her prose works include *La Jeunesse de Mirabeau* (1841); *Lui, roman contemporain* (biography disguised as fiction) (1859); *Les Derniers Abbés* (1868). She also gained notoriety by being involved in various public controversies.

Colette, pseudonym of Sidonie Gabrielle Claudine Colette (Mme Henri de Jouvenel) (b. 1873), Fr. writer. Her earliest works include a series of stories of a semi-autobiographical character, entitled *Claudine à l'École* (1900); *Claudine à Paris* (1901); *Claudine en ménage* (1902); *Claudine s'en va* (in collaboration with M. Willy, 1903). Among her novels are *L'Ingénue libertine* (1905); *La Retraite sentimentale* (1907); *La Vagabonde* (1910); *L'Enlèvement* (1914); *Chéri* (1920); *La Fin de Chéri* (1926); and *La Châtelaine* (1933). She also written short stories, essays, and some plays. Chevalier of the Legion of Honour.

Colgate University, Amer. institution for the higher education of men. Founded in 1819 in Hamilton, New York, it was incorporated as Madison Univ. in 1846. In 1890 the name was changed to C. U., on account of benefaction received from the C. family, and in 1893 Hamilton Theological Seminary was united to it. An interesting account of the early days and of students is given in *The First Half-Century of Madison University* (1872).

Colic, spasmodic or crampy affection of the muscular fibre coat of the intestines.

The patient is subject to great pain, with intervals free from it, and at the same time there is obstinate constipation and sometimes vomiting. There is no inflammation or fever, and a peculiarity is that it is relieved by pressure on the abdomen, thus distinguishing it from inflammation of the bowels. The disease is most likely due to passive congestion, and is due directly to sev. causes. Indigestion is the most common cause, especially in children, and the eating of large quantities of indigestible food, such as raw greenstuff, generally may be found to have preceded the attack. Other causes are cold in the stomach due to insufficient warm woollen clothing on that part, and a particular variety known as painter's C. is due to lead poisoning. The pain is very severe, and causes the patient to draw up his knees to the stomach, and the first care is to relieve this pain. The general method of palliation is by means of opiates, which are generally administered in large doses. Then the bowels must be evacuated, an obstinate process that, by reason of the pain, the patient is unable to perform for himself. For C. in horses, see under HORSE (DISEASES).

Coligny, François de (d'Andelot), (1531-1568), fourth son of Gaspard de C., maréchal de Châtillon, and Louise de Montmorency (d. 1522). He, like his brothers Gaspard and Odet, adopted the Reformed faith, and was an ardent promoter of the *livres de boucliers* of 1560, 1562, and 1567. He was poisoned at Saintes, probably at the instigation of Catherine de' Medici.

Coligny, Gaspard de (1519-72), Fr. soldier and admiral, was the third son of Gaspard. In 1543 C. began his career by taking part in military affairs, and was wounded at Montmédy and Bains. In the following year he served in Italy and did distinguished service at Ceresole. In 1547 he was appointed colonel-general of the infantry, a position of considerable importance in France, and while holding this office he carried out many reforms. In 1552 he was made admiral, and in 1557 he was captured at St. Quentin— and was imprisoned in the fortress of L'Écluse, but subsequently ransomed. During this time he began to embrace the doctrine of the Reformers, and constituted himself the champion of the Protestants, sending out colonies of Huguenots, one of them to Brazil. He then took up arms against the Guiseas, and fought at Dreux, St. Denis, Jarnac, and Montcontour, in most of which battles he was defeated. In 1570 peace was signed at St. Germain, and C. returned to court. He counselled King Charles IX. to lead an expedition against Spain, but the queen-mother feared that her prestige with Charles was declining owing to the favour shown to C., and contrived that the expedition should not be successful, the result of her intervention being the massacre of St. Bartholomew, Aug. 24, 1572. On this date C., who had been shot at two days before at the instigation of the queen-mother, but only slightly

injured, was again the subject of an attack—this time at his house—and was slain by a Ger. named Besme. See L. J. Delaborde, *Gaspard de Coligny, Admiral of France, 1879-82*.

Coligny, Odet de (c. 1517-71), second son of Gaspard, brother of François (d. 1569). He was created cardinal, 1533; archbishop of Toulouse, 1534; and bishop of Beauvais, 1535. He did not openly profess Protestant views till 1560, and even afterwards was still known as Le Cardinal de Châtillon. In 1561 he abjured Catholicism, and was excommunicated by the pope, 1563. C. was plenipotentiary of the Huguenots during the civil war of 1567-68, and was forced to flee to England to escape from Catherine de' Medici. He was poisoned, probably at her command, at Hampton Court, when intending to return to France, after the declaration of peace (St. Germain, 1570). See Brantôme, *Mémoires*, 1665-66; L. Moreri, *Le Grand Dictionnaire historique*, 1759; J. F. Michaud, *Biographie universelle*, 1843-66; Mariet, *Le Cardinal de Châtillon*, 1883.

Collima: A state of Mexico, bounded by Jalisco on the N., the Pacific Ocean on the S.W., and Michoacan on the E. The surface is mostly mountainous. Among its productions are sugar, maize, pulse, rice, tobacco, palm-oil, indigo, corn, cotton, and rich fruits. It exports much coffee, hides, and palm-leaf hats. There are salt deposits in the coast region, and ore deposits in the mts. Area 2275 sq. m. Pop. (1940) 79,000. 2. Cap. of above, 30 m. from Manzanillo, the chief port, 145 m. from Guadalajara, in the valley watered by C. R. It is a great commercial centre. Pop. 30,000. Also a volcano near by, 12,750 ft. (in eruption in 1869), and a snow mt., 14,364 ft.

Colin, Alexander (1526-1612), Flemish sculptor, was b. at Malines. Ferdinand I. commissioned him to help with a monument erected to Maximilian I. at Innsbruck, and the greater part of the work on this tomb was done by him. C. held the post of sculptor to the emperor, and in the church where Maximilian's tomb is are those of the Archduke Ferdinand and Bishop Jean Nas, both the work of this sculptor.

Coliseum, see COLOSSEUM.

Colitis, inflammation of the mucous membrane of the colon, which is that part of the large intestine extending from the cæcum to the rectum.

Coll, is. forming a par. of the same name in Argyllshire, Scotland, one of the Inner Hebrides on the W. coast of Mull, 10 m. from Ardnamurchan Point. Length 12 m., breadth 1-4 m. It has sev. small bays and a harbour, at Avinagour. The is. has a wide reputation for its cheese. Pop. 400.

Colladon, Jean Daniel (1802-92), Swiss engineer, b. at Geneva. He won the Grand Prix at the Academy of Science in Paris in 1827 with *Mémoire sur la compression des liquides et la vitesse du son dans l'eau*, and two years later received the professorship of mechanics at the School of Arts and Manufs. in that city.

He invented a dynamometer which was adopted by the Brit. Admiralty, and developed the use of the energy stored in compressed air in tunnelling operations in 1852. His most important work is *Mémoires des savants étrangers* (1838).

Collagen, protein of white elastic fibres and of bone, which, boiled with water, produces gelatine.

Collapse, moderately severe condition of shock (q.v.). A patient suffering from shock lies in a state of utter prostration. The face is pale and drawn, the body cold and clammy, the pulse is quick, but barely perceptible, and the breathing short and gasping, being at times suspended. It may result from any shock to the nervous system, causing an arrest of the heart's action, while it also precedes death in cases of cholera and other exhausting diseases. Cardiac stimulants such as strychnine are used, and artificial heat is supplied, in cases of this sort. Rectal injections of warm saline solution, or injection of blood or saline solution into a vein, are necessary in cases caused by hæmorrhage.

Collapse, Pulmonary, or Apneumatosi, term used to signify that condition when a portion of a lung ceases to expand and contain air with inspiration. It may be caused in two ways, either, as in the case of an effusion of fluid in pleurisy, by pressure being exerted on the outside of the lung, or, as in the case of a blocking of the bronchial tube by a tumour, by an obstruction preventing the access of air to the lung. Suffocation may be caused by this state, of course, and the chances of recovery largely depend upon the strength of the patient and the severity of the C. Ipecacuanha or other drugs are used to promote expectoration in order to remove the mucus blocking the way, together with, in many cases, stimulants such as aromatic spirits of ammonia.

Collatio, or Mosaicarum et Romanarum Legum Collatio, or Lex Dei, compilation comparing the law of Moses and Rom. law in sixteen titles, probably dating from the sixth century A.D. Each title is headed thus by legal rules from the law of Moses, 'Moses dicit.' There follow, by way of comparison, rules of Rom. law from the five Rom. jurists, Papinian, Paulus, Gaius, Ulpian, and Modestinus (third century A.D.), and from the three compilations which preceded Justinian's *Corpus Juris Civilis* (sixth century A.D.), *Gregorianus Codex*, *Hermogenianus Codex*, and *Theodosianus Codex* (from the time of Constantine to that of Theodosius II., first pub. A.D. 438). The C. is valuable for its extracts from the above sources. It is printed in Schulting's *Jurisprudentia Vetus Ante-Justiniana*, 1717. An ed. by Blume appeared in the Bonn ed. of the *Corpus Juris Ante-Justinianei*, and a separat. ed. in 1833.

Colle, Raffaellino dal, It. painter b. at Colle near Borgo San Sepolcro about 1490. He was a pupil of Raphael and then of Giulio Romano. He assisted Raphael in the decoration of the Vatican. In his school at San Sepolcro, Gherardi, Vecchia, and other artists received their

training. Grace and conscientiousness characterise C.'s work.

Collect, brief prayer, offered up for some special purpose or on some special day. The etymology of the word is uncertain, though it is evidently derived from Lat. *colligere*, to collect. One explanation is that the prayer collects or gathers up in a comprehensive form the petition of all the people assembled. Thus it was offered up before the whole congregation, *ad collectam*, and was distinguished from prayers offered up during mass, *ad missam*. Some argue, however, that the prayer was so called because it collected or gave a brief paraphrase of the teaching of the epistle and gospel, which it immediately preceded. The form of the C. is very simple. It begins with an invocation to God, contains one single petition, with special reference to the day or event celebrated, and closes in praise to Jesus Christ. The Cs. of the Common Prayer Book were composed at a very early date. Eight were added in 1661, and most of those for saints' days were written at the Reformation. Many are derived from the sacramentaries of St. Leo (A.D. 440-61), of St. Gelasius (492-98), and of Pope Gregory (590-604). The Cs. for Advent, Christmas Day, Ash Wednesday, and a few others, have been adapted from ancient prayers. See Canon Bright, *Ancient Collects*, 1857; S.P.C.K., *On the Collects*, 1862; F. Procter and W. H. Frere, *A New History of the Book of Common Prayer*, 1905.

Collections at Churches. In Scotland up to 1845 the contributions made at par. churches formed the prin. fund for the support of the poor. A proclamation of Aug. 29, 1693, ordained that one-half only of the sums collected at par. churches and of the dues received by the kirk-session, should be paid over by them into the general fund for the relief of the poor. No directions were given as to the objects to which the remaining half was to be applied, but in practice it was used by the kirk-session for grants by way of temporary relief in cases of sudden distress and pending admission to the permanent roll of the poor. The courts also allowed as proper charges against the fund the session-clerk's salary and the cost of a new tent for field preachings. C. received at dissenting meeting-houses did not form part of the poor's fund, but were at the sole disposal of the congregation by whom they were supplied. The collection of contributions at church doors was properly the province of the minister and elders; but when they neglected that duty, the heritors used to officiate in their stead. C. at C., eked out in a number of pars. by mortifications, and mortcloth dues, and by assessments on heritors, formed practically the sole fund for the maintenance of the poor down to the middle of the nineteenth century, when it broke down through the rise of large tns. and the increase of religious dissent. Then came the Poor Law Act, 1845, which gave all par. councils certain powers for the relief of the poor, and although the system under that Act is not

compulsorily imposed on Scottish pars., it became almost universally adopted. In England at the present day C. at C. are made as they have been made for a great number of years by passing round a plate or bag. But, except in regard to the provisions as to the offertory, there have never existed any statutory or other legal provisions as to the destination of the sums so collected. By an Act passed in the twenty-seventh year of Henry VIII.'s reign, it was provided that money collected for the poor should be kept in the common coffer or box standing in the church of every par.; and Canon No. 84 enjoins on the churchwardens the duty of setting up a 'strong chest, with a hole in the upper part thereof,' in a convenient place, 'to the intent the parishioners may put into it their alms for their poor neighbours.' The present rubric substitutes a basin to be provided by the par. Alms collected at the offertory—which was anciently an oblation for the use of the priest and changed at the Reformation into alms for the poor—whether in churches or chapels, were, according to the rubric, at the disposal of the incumbent and churchwardens, who are to distribute the money to such pious and charitable uses as they think fit.

Collective Security, concept which grew out of the Geneva conferences on disarmament after the First World War (see DISARMAMENT) and acquired an added emphasis during the Italo-Ethiopian war. Literally, C. S. meant that, under the covenant of the League of Nations (see COVENANT OF THE LEAGUE OF NATIONS), the member states of the League should together guarantee the security of each individual member. When Mussolini threatened Abyssinia, a special committee on C. S. was formed with a view to curbing not only his aggressive designs but also to check the menace implicit in Ger. rearmament. Fundamental difficulties which had, however, previously arisen over the concept culminated in the fiasco of the League's vain efforts to prevent Italy from making war upon Abyssinia. For it now became evident that, even if the League could ensure resistance to a war of territorial aggression—and experience in 1939-40 was to show that it could not—it could not compel nations to compromise on issues which they felt to be vital to their national interests, and, generally speaking, no other issues really mattered. A further effort to construct a new system of C. S. through a series of multilateral politico-military alliances, all aimed against Hitler's policy of naked aggression, proved equally futile. On the constitution, functions, and powers of the Security Council of the United Nations, which has replaced the machinery of the covenant of the League, see UNITED NATIONS CHARTER.

Collectivism, word of modern origin, first used apparently by Bakunin to express the distinction between his tenets and those of Karl Marx, has since come to convey the same idea as Socialism, and is the theory that industry should be

carried on with collective capital under the control of the community. See ANARCHISM and SOCIALISM; on the collectivisation of farms in Russia see under RUSSIA.

Colle di Val d'Elsa, tn. of Italy, in the prov. of Siena. It is situated on the Elsa, 22 m. S.S.W. of Florence. It is an episcopal see, and has a fine medieval cathedral and a number of old palaces. In the new part of the tn. there are paper and glass factories. Pop. (com.) 10,000.

College, in Rom. law, an association of persons for a specific purpose, a body of colleagues. The C. corresponded roughly with our corporation; it had to be incorporated by some public authority, springing from either senate or emperor. Collegia might exist for purposes of trade (cf. gilds), for religious purposes (e.g. Cs. of augurs, pontifices, etc.), or for political purposes (e.g. *tribunorum plebis collegia*). By Rom. law a C. must have at least three members. With us a C. is an incorporation or society of persons joined together generally for educational literary, or scientific purposes, and frequently possessing peculiar privileges. Such are the Cs. of Oxford and Cambridge (see UNIVERSITIES), C. of Physicians, C. of Surgeons, Heralds' C., etc. Educational Cs. seem to have grown out of the voluntary association of teachers and students at the univ. They seem to have been more numerous and flourishing than anything we know now; we hear of 300 halls or societies at Oxford, and 30,000 students. Men of wealth and culture, especially the political bishops and chancellors of England, obtained charters from the Crown for the incorporation of societies of scholars, and these gradually became the places of abode for students attending the univ. Later the univ. and the C. became co-extensive; every member of the univ. had to belong to some C. or hall, and was obliged to matriculate in the univ. The corporation consists of a head or master, fellows, and scholars. The governing body is the head and fellows. All eccles. or educational corporations have a visitor, whose duty it is to see that the founder's statutes are obeyed, and to decide disputed cases, provided they do not come under the common laws of the country or have to do with trusts attached to the C. The visitorship usually resides in the founder and his heirs or in the Crown. The fellowships, scholarships, etc., of Cs. are subject to various restrictions, which are gradually being abolished. Some of the public schools are Cs., and many secondary schools are so called. In Scotland and in the U.S.A., the C. is not distinguished from the univ., and we hear of Cs. granting degrees.

Collège de France, The, was founded in Paris by Francis I., about 1520-45, in opposition to the scholasticism of the univ. Erasmus was asked to be its principal, but he refused. It was first known as the Collège de Trois Langues, because originally the teaching embraced only three languages—Gk., Heb., and Lat. The univ. of Paris has frequently tried to

obtain control, but without success. Until the time of the revolution it was regarded as a royal college. It is now under the control of the minister of public instruction, but it is autonomous. There are no fees, no examinations, and no degrees or diplomas. Scientific research work is particularly encouraged. Its famous profs. have numbered Rollin, Saint-Iliaire, Laboulaye, and Gaston. At the present day there are over forty chairs, and every branch of learning is taught. See C. P. Gouyet, *Le Collège royal de France*, 1758; and Bouchon-Brandely, *Le Collège de France*, 1873.

College Point, formerly a post vil. of Queen's co., New York, on Long Is. Sound. Since 1898 it has been recognised as part of New York city.

Colleges, Training, see TRAINING COLLEGES.

Collegiate Church (from Lat. *collegium*, assembly), one to which is attached a body of clergy, differing from a cathedral in that it is not the seat of a bishop. It is supervised by the bishop of the diocese. There were many on the Continent before the Reformation, the most famous one being that of Aix-la-Chapelle. After the Reformation, nearly all of those in England were suppressed by Edward VI. Ripon and Manchester have since been constituted cathedrals for new dioceses. In Scotland the term is applied to a church which has two incumbents in the par.

Collembola, name given by Sir John Lubbock to the minute wingless insects known as spring-tails. Their chief characteristic is the power possessed by most of them of taking sudden leaps when alarmed, made possible by a curious apparatus on the under part of the body. See Sir J. Lubbock, *Monograph of the Collembola and Thysanura*, 1873.

Colleoni, or **Colseone**, **Bartolommeo** (1400-1475). It. soldier, b. at the castle of Solza, near Bergamo. In the war between the Milanese and Venetians his services were in great request by either side, and he fought for both. In 1446 he was imprisoned as a spy by Philip Visconti, duke of Milan. In 1451 he definitely joined the Venetian army and became generalissimo of the Venetian state, when he showed his brilliant military talents. Near the church of ss. Giovanni e Paolo in Venice there stands an equestrian statue in his memory, executed by Andrea del Verrocchio.

Colles, **Abraham** (1773-1843), Brit. surgeon, b. at Millmount, near Kilkenny, Eire. He was appointed prof. of anatomy and surgery in the Irish College of Surgeons (1804-36), and discovered what is known as C.'s fracture of the radius. He pub. sev. papers on medical and surgical subjects, including *The Use of Mercury in Venereal Complaints* (1837).

Colles, **Jenny Cope** (1879-1943), Eng. musical critic. Educated at Royal College of Music and Worcester College, Oxford. Became assistant music critic to *The Times* in 1906, and chief critic in 1911. Wrote a number of valuable books on music and ed. the third and fourth eds. of Grove's *Dictionary of Music*.

Colle-Salvetti, com. in Tuscany, Italy, 10 m. S.E. of Pisa. Pop. 11,000.

Collesano, tn. of Sicily, 25 m. E.S.E. of Palermo. Jasper and agate are quarried. Pop. 8000.

Collett, Jakobine Camilla (*née Wergeland*) (1813-95), Norwegian novelist, sister of the poet Henrik Wergeland. She was the chief exponent in Norway of the emancipation of women, and her writings deal largely with the suppression of a woman's personality in married life. Her novels give a realistic picture of Norwegian domestic life. Her first, *Amtmandens Døttre* (1885), is perhaps the best. Others are *Fortællinger* (1861); *I de lange Nætter* (1863); *Sidste Blad* (1868-72); and *Mod Strømmen* (1879, 1885).

Colletta, Pietro (1775-1831), lt. statesman and historian, b. at Naples. He took part in the rising of Ferdinand of Naples (1799), and served with distinction in the army of Joseph Bonaparte till 1806. In 1815 his troops suffered defeat from the Austrian army at Casalanza, but his services were retained. His great historical work, *Storia del Reame di Napoli dal 1734 sino al 1825* (1834), was trans. into Eng. in 1858 by Horner. Consult the memoir by G. Capponi in the 2nd ed. of the *Storia*, 1848.

Colley, Richard, see WELLESLEY, MARQUESS.



ROUGH-COATED COLLIE

Collie, sheep-dog used to protect and control flocks. The Scottish C. is one of the most popular breeds, on account of the affectionate faithfulness it exhibits towards its owner. Renowned for its sagacity and intelligence, and with a snappy temper, it was formerly used chiefly in Scotland and N. England purely as a sheep-dog. During the middle of the last century, and until the 1920s, he was popular as a domestic companion, and was seen in tns. as frequently as on the mt. side. His popularity as a pet or show dog, however, has declined in recent years. There are two kinds of Scottish Cs., rough and smooth haired. The chief points to be looked for are a long head with a sharp nose; ears small, and folded back at the tips when in repose; eyes bright and dark, set obliquely somewhat close

together; fore-legs straight; hocks bent; feet strong and round. The rough-coated variety should have a very thick, soft under-coat, hanging from which a long and wiry outercoat; a full mane and deep frill round the neck; fore-legs a little feathered; hind-legs smooth below the hocks; a long and bushy tail. The smooth-coated C. has no feathering on tail, ears, and legs; his coat is flat but thick. The average height for dogs is 22 to 24 in., for bitches, 21 in.; the average weight for dogs is from 50 to 65 lb., for bitches from 40 to 50 lb. The colour varies considerably, from black and tan, tan and white, sable and white, to pure white. The Welsh bob-tailed C. has a long, shaggy, blue-grey coat, and stands 25 in. high. Its tail is cropped when young. Cs. are often crossed with black-and-tan setters.

Collie, tn. in coal-fields, 122 m. from Perth, W. Australia. Pop. 4500.

Collier, Arthur (1680-1732), Eng. metaphysician, who wrote *Clavis Universalis*, or *A New Inquiry after Truth*, being a demonstration of the Non-Existence and Impossibility of the Eternal World (1713); *A Specimen of True Philosophy* (1730), and *Logology, or a Treatise on the Logos* (1732).

Collier, Sir George (1738-95), Brit. vice-admiral, b. in London. He entered the navy in 1751, and in ten years was promoted to the rank of commander. He was appointed senior officer at Halifax, Nova Scotia (1776-79), and, when commanding the *Rainbow*, captured the Amer. frigate, the *Hancock* (1777). In 1779 he relieved Penobscot and did much damage to the Amer. ships. He took part in the relief of Gibraltar, when he was successful in capturing the Sp. frigate, the *Leocadia* (1781).

Collier, Jeremy (1650-1726), Eng. religious writer and indomitable assailant of the gov. of his time. He was b. at Stow-cum-Quy, Cambridgeshire, educated at Caius College, and took orders in 1677. On leaving college he became rector of Ampton in Suffolk, and afterwards lecturer at Gray's Inn and preacher of the Rolls. He was an extreme high churchman, and at the revolution refused to take the oaths to gov. For writing a pamphlet in defence of the de throne monarch he was committed to prison, and again in 1692 for a series of pamphlets against William. He was released without trial, and again he returned to the charge, harassing the gov. by violent pamphlets, and openly exulting at any reverse suffered by it. In 1696 he went so far as to pronounce absolution without confession on the scaffold at Tyburn to Friend and Parkyns, executed for plotting the murder of the king. To avoid recognising the authority of government by giving bail, C. absconded when the matter was brought before the court. For this he was outlawed, and he remained under the ban for the rest of his life. He now gave himself up principally to literary work. He wrote *The Great Historical, Geographical, Genealogical and Political Dictionary*, trans. chiefly from

Moréri (1701); issued essays upon many moral, religious, and political subjects, a vol. of practical discourses, and a trans. of the *Meditations of Marcus Aurelius* (1701); and *An Ecclesiastical History of Great Britain, chiefly of England, 1708-14*. His famous treatise, *A Short View of the Profaneness and Immorality of the English Stage* (1698), roused against him the violent opposition of the theatrical world, and led him into a long and triumphant controversy with Congreve and Vanbrugh. Lord Macanlay eulogises this treatise in these words: 'There is hardly any book of that time from which it would be possible to select specimens of writing so excellent and so various.' C. was a man of profound and extensive learning, of great ability, and honest, though somewhat bigoted. His persistent opposition to the gov. probably alone stood in the way of his being raised to the highest eccles. dignities.

Collier, John (1708-86), Eng. poet and painter, b. at Urnston, near Manchester. In early life he was apprenticed to a Dutch weaver, but in 1729 obtained a position in a law school at Milnrow, near Rochdale, which he held till his death. He excelled in caricature-drawing and in rhyming satire. Under the name of 'Tim Bobbin,' he pub. *The Blackbird* (1739), *View of the Lancashire Dialect* (1746), *Truth in a Mask* (1757), *The Fortune-Teller* (1771), two skits on John Whitaker's *History of Manchester*, in collaboration with Col Townley (1771, 1773); and a vol. of twenty-six humorous engravings, with rhyming descriptions, entitled *The Human Passions delineated* (1772-73). Consult the life by H. Fishwick, prefaced to his works, 1895.

Collier, John (1850-1934), Eng. painter. He was b. in London Jan. 27, being the second son of Sir Robert Porrett C., afterwards Lord Monkswell, and was educated at Eton. Thereafter, at Heidelberg, he was chiefly interested in duelling. He studied art at the Slade School and at Paris and Munich, and had some hints from Alma-Tadema and Millais. He exhibited at the Academy from 1877, and obtained considerable fame and popularity through his 'story-telling' pictures—e.g.: 'The Last Voyage of Henry Hudson' (1881); 'A Glass of Wine with Cæsar Borgia' (1893); 'Urban VI' (under the torture-chamber window) (1896); 'A Confession' (1902); 'The Prodigal Daughter' (1903); 'Mariage de Convenience' (1907); 'A Fallen Idol' (1913). But his best work is in portraiture—e.g.: Rudyard Kipling (1891); Prof. Huxley (1891); Prof. Burdon Sanderson (1894); The Duke of York (i.e. George V.) (1901); Prof. E. Ray Lankester (1904); Lord Alverstone (1912). He pub. works on the art of painting, including *A Manual of Oil Painting* (1903), and *The Art of Portrait Painting* (1905).

Collier, John Payne (1789-1883), Eng. Shakespearian critic and commentator, b. in London. He was called to the Bar in 1820. His first publication, *The Poetical Decameron*, appeared in 1820; in 1825-1827 he prepared a new ed. of Dodsley's

Old Plays, to which he added six which had not hitherto been in print. Henceforward he devoted his life to the study of Elizabethan literature, but gave most of his time to the plays of Shakspeare. He issued *The History of English Dramatic Poetry to the Time of Shakspeare*, and *Annals of the Stage to the Restoration* (1831); *New Facts; New Particulars*; and *Further Particulars on Shakspeare*, in three vols. (1835-39); an ed. of the poet in eight vols. (1842-44); and *Memoirs of Actors in the Plays of Shakspeare* (1846). C. was one of the founders of the Shakspeare and Camden Societies, for which he ed. many old texts. In 1852 he pub. a vol., entitled *Notes and Emendations to the Text of Shakspeare's Plays*, which caused a great sensation among Eng. and Ger. scholars. He possessed a copy of the 1632 folio, since known as the Perkins folio, because on it is inscribed 'Tho. Perkins his Booke.' C. asserted that the notes written in the margin of his folio dated from the middle of the seventeenth century, and adopted them as emendations of the text. It was afterwards proved that the marginal notes were forgeries. These and other forgeries of his are carefully enumerated in Sir Sidney Lee's *Life of Shakspeare* (appendix 1.) C. also wrote a *Bibliographical and Critical Account of the Rarest Books in the English Language* (1865), *An Old Man's Diary, Forty Years Ago* (1871-72), and ed. seventeenth- and eighteenth-century Reprints, and the works of Thomas Heywood and Edmund Spenser. See H. B. Wheatley, *Notes on the Life of John Payne Collier*, 1881.

Collier, Robert Porrett, see MONKWELL, BARON.

Colliery, see under COAL MINING, and COAL SUPPLIES.

Collimation, adjustment of a telescope in such a manner that the line of sight (optical axis) is exactly perpendicular to the axis of movement. One common method of obtaining C. is by adjusting the telescope in its ordinary position, and when it is reversed in the bearings the angular discrepancy is noted, and one-half of that gives the error of collimation. A collimator is an auxiliary telescope used to detect and correct errors in C. It is fitted with cross wires and mounted before the transit instrument. When these threads coincide with the axes of the telescope, then it is collimated both vertically and horizontally. In determining the nadir point, a telescope may be its own C., if it is fitted with a collimating eye-piece.

Collings, Jesse (1831-1920), politician, was until 1879 head of the firm of Collings and Wallis, merchants, Birmingham. Elected as member for Ipswich, 1880. It was C.'s Small Holdings amendment to the Art. Press—an amendment involving the Radical scheme for 'three acres and a cow,' which secured in 1886 the downfall of Lord Salisbury's Ministry. In the same year he first represented Bordesley (Birmingham) in the House, and for a short period acted as parl. secretary to Joseph Chamberlain, president of the

Local Gov. Board. Besides founding the Rural Labourers' League, and the National Education League he played an active part in the municipal life of Birmingham. *D.* at Edgbaston Nov. 20.

Collingswood, bor. 3 m. from Camden, New Jersey, U.S.A., a residential t.n., pop. 9000.

Collingwood: 1. City in Bourke co., Victoria, Australia, situated on the R. Yarra-Yarra, and forming a N.E. suburb of Melbourne. Pop. 35,000. 2. Lake port of Ontario, Canada, situated in Simcoe co. on the S. shore of the Georgian Bay, Lake Huron, 72 m. N.W. of Toronto. It is a terminus for two lines of steamers from Huron to Lake Superior ports, and possesses a large dry-dock and shipyard. An important trade in grain and lumber is carried on, and there are numerous factories. Pop. 11,000.

Collingwood, Cuthbert, Admiral Lord (1750-1810), *b.* at Newcastle. He went to sea when eleven years old, became lieutenant in 1774, was appointed commander of the *Badger* in 1779, and soon after post-captain of the *Hinchinbrook*. He served under his friend Lord Nelson in the Sp. main in 1780, and again in the W. Indies in 1783-86. In 1793 he was captain of Rear-Adm. Bowyer's flagship the *Prince*. He was actively engaged under Howe at the great battle of June 1, 1794, and under Jervis off Cape St. Vincent on Feb. 14, 1797. His extraordinary valour and judgment in these two engagements caused him to be held in great honour by the whole fleet. In 1799 he was made vice-admiral, and from 1803 he was constantly on active service. At Trafalgar he was second in command, his vessel, the *Royal Sovereign*, was the first engaged, and to him much of the honour of the victory was due. On Nelson's death he took supreme command of the fleet and was raised to the peerage. For three years his fleet maintained a blockade of Cadiz, the straits of Gibraltar, and the adjoining coast. To the end of his noble life he remained, although worn out, at his post, his country refusing to release him.

Collins, Anthony (1676-1729), writer and controversialist whose opinions roused violent opposition from the orthodox of his time. *Priestcraft in Perfection* (1709) attacks the 20th Article of the Church of England, *A Discourse of Free-thinking* (1713) attempts to prove the uncertainty of the principles of the clergy. The *Discourse* gave rise to so much excitement that C. found it expedient to take a trip to Holland. On his return he became, not without hostile demonstrations, J.P. and deputy-lieutenant of the co. of Essex.

Collins, Arthur Pelham (1863-1932), Eng. theatrical manager, *b.* in London, son of H. H. C., a city architect. Educated at City of London School, and in Hanover. Worked first in his father's office; in 1881 apprenticed to Henry Emden, scenic artist at Drury Lane Theatre. Became stage-manager, and produced the dramas and pantomimes there, 1887-96. On death of Sir Augustus

Harris, he obtained lease of the theatre, and became managing director of the limited company formed to work it. Produced all the dramas and pantomimes 1897-1924.

Collins, Charles Allston (1828-73), Eng. painter and author, second son of Wm. C. the painter. He married Kate, the younger daughter of the novelist Dickens, in 1860. In early life he showed much talent in his painting on pre-Raphaelite principles. In 1860 he pub. *The Eye-witness*, in 1862 *A Cruise on Wheels*, and various other works.

Collins, John (1625-83), Eng. mathematician, son of a nonconformist divine, *b.* in Oxfordshire and apprenticed to a bookseller in Oxford. Obtained a clerkship in the employment of John Marr, clerk of the kitchen to the Prince of Wales, where his immediate employer, taught him some mathematics.

The outbreak of the civil war, however, drove him out of the country on the high seas in the service of the Venetian republic. He devoted his leisure to the study of mathematics and of merchants' accounts and, later, set up in London as a teacher, writing sev. works on merchants' accounts, the use of quadrants, geometrical dialling and mariners' plain scales. After the Restoration he was appointed successively accountant to the exchequer, accountant in chancery, and secretary to the council of plantations. He had a large family by one of the daughters of Wm. Austen, head cook to Charles II. and his means of subsistence became ever more precarious; and he *d.* in 1683 of asthma and consumption. An enlarged ed. of his *Doctrine of Decimal Arithmetick* had occupied his attention a year before his death. His *Arithmetick in whole Numbers and Fractions, both Vulgar and Decimal* was pub. by Thomas Plant in 1688. He was elected a fellow of the Royal Society in 1667. For his zeal in collecting and diffusing scientific information and in urging the use of improved methods in the various branches of science he was, not undeservedly, styled the 'English Mercennus.'

Collins, John (1742-1808), actor and writer: was a playmaker, but took to the stage, in which he was fairly successful. He also gave humorous entertainments and pub. *Scriptorapologia* (1804) a book of verses. He is worthy of mention for the little piece, *To-morrow*, beginning 'In the downhill of life when I find I'm declining,' characterised by Palgrave as 'a truly noble poem.'

Collins, John Churton (1848-1908), Eng. literary critic *b.* in Gloucestershire and educated at King Edward's School, Birmingham, and Oxford, who for many years was a prominent univ. extension lecturer, and contributed regularly to the prin. reviews. His first book was a study of Sir Joshua Reynolds (1874) and later works included: *Bolingbroke, a Historical Study; and Voltaire in England* (1886); *The Study of English Literature* (1891); *Illustrations of Tennyson* (1891); *Jonathan Swift* (1893); *Ephemeris Critica* (1901); and *Studies in Shakespeare* (1904). In

1901 he ed. Dryden's *Satires*, and also pub. eds. of *Cyril Tournier's Plays and Poems*, 1874, etc. See L. C. Collins, *Life and Memoirs of John Churton Collins*, 1912.

Collins, Michael (1890-1922), Irish revolutionary general, b. at Woodfield, Clonakilty, co. Cork, youngest son of the family of eight of John C. farmer—whose wife was forty years his junior. Educated at a national school, entered Eng. civil service at fifteen—was in London G.P.O. and afterwards in a London accountant's. On Easter Monday, 1916, he took part in the seizure of Dublin G.P.O. The same week he was captured. He was sent to Stafford jail, and afterwards to Frongoch camp, Merioneth—whence he was released before Christmas, 1916. In 1918 he was imprisoned in Shigo jail for a seditious utterance; and elected for co. Cork, to Dail Eireann, which proclaimed an Irish republic. The president, De Valera, escaped from Lincoln jail in March 1919, C. assisting. C. was minister of finance; also head of the intelligence dept. of the army. By 1920 an offer of a reward of £10,000 was out for his arrest for he was noted for the fearlessness with which he went about and escaped capture. Principally through his influence, in 1921, the Brit. terms for an Irish Free State were accepted by the Dail. De Valera's successor Griffith dying suddenly, C. became head of the Irish Gov.; and he entered into discussions with Protestant Ulster while fighting republican irreconcilables in the S. By the latter he was ambushed and shot dead while motoring from Skibbereen to Cork, Aug. 22, 1922.

Collins, Mortimer (1827-76), Eng. novelist, son of a solicitor of Plymouth. For a time taught mathematics in Guernsey. Settled in Berkshire to adopt a literary life, writing chiefly for periodicals. Also wrote occasional and humorous verse. His chief novels are *Steel Anne Page* (1868); *Two Plunges for a Pearl* (1872); *Mr. Carrington* (1873), under the pseudonym of 'R. T. Cotton'; and *A Fight with Fortune* (1876).

Collins, William (1721-59), Eng. poet, b. at Chichester, son of a prosperous hatter there. Became a scholar of Winchester, and there formed a close friendship with Joseph Warton. In 1740 he went to Oxford, matriculating from Queen's College, shortly before Warton went to Oriel, and the following year he obtained a demyship at Magdalen. Graduated in 1743 and then went to London in pursuit of a literary career. There he endured much privation and even suffered imprisonment for debt. Johnson befriended him, and he was intimate with Thomson. In 1749 he was relieved by an uncle's legacy, but it was too late, for he was too broken in health and spirits, and from despondency he fell into insanity and d. a physical and mental wreck at Chichester, in the home of his sister. The beginning of his melancholy began with disappointment over the reception of his poems, especially his *Odes*. Posterity has signally reversed the judgment of his contem-

poraries and has placed him at the head of the lyrists of his age. He did not write much, but all that he wrote is the precious outcome of a warm heart allied to a pure sense of beauty. His first pub. work was a small vol. of poems, including the *Persian* (afterwards called *Oriental*) *Elegues* (1742); but his principal work was his *Odes* (1746; dated 1747), including those to *Evening* and *The Passions*, which will live as long as the language. His other works are *Verses address'd to Sir Thomas Hanmer* (1743); *Ode on the Death of Thomson* (1749); *Dirge on Cymbeline* (1749); and the unfinished *Superstitious of the Scottish Highlands* (written 1749; printed 1788, after discovery by Dr. Alexander Carlyle). In poetical taste C. was in full sympathy with Warton, but so far outshines him that it may be assumed that Warton's critical work owes everything to C. and, if that be so, C. was the real innovator in literary criticism and the chief herald of the Romantic school. C.'s poetry is distinguished by high imaginative quality, and by exquisitely felicitous descriptive phrases. Johnson's criticism was harsh, but it expressed the contemporary opinion of C., who was b. before his time (in his *Persian Elegues* he might almost seem to have written his own epitaph: 'Deform'd, unfinished, sent before my time into this breathing world, scarce half made up'). What Johnson could not see was that C.'s revival of obsolete words such as 'lorn,' 'westering,' and others came naturally to him, were a genuine part of the dialect in which C. thought, and were a necessary revival if the language was to regain its power of true poetic expression. Historically, perhaps, the most remarkable of all C.'s poems is the *Ode on the Superstitions of the Highlands*, a most important poem in the early Romantic movement and the return of imagination to Eng. poetry. See memoirs prefixed to A. Dyce's ed. of the *Poetical Works*, 1827; M. Thomas's *Aldine* ed., 1858-1894; H. W. Garrod, *Collins*, 1928.

Collins, William (1788-1847), Eng. landscape and figure painter, b. in London. In 1807 he became a student at the Royal Academy, and in 1820 was elected R.A. His picture of the 'Young Fifer' was sold for eighty guineas in 1811, and his 'Sale of the Pet Lamb,' the following year, realised 140 guineas. His finest work is in his two pictures entitled 'As Happy as a King,' 1834, and 'Early Morning,' 1846.

Collins, William Wilkie (1824-89), Eng. novelist, was the eldest son of Wm. Collins, R.A., and received the name Wilkie, by which he was commonly known, from the great contemporary painter, Sir David Wilkie. At an impressionable period (from the age of twelve to fifteen) he lived with his parents in Italy, a period from which he clearly drew his inspiration for *Antonina* (1850), his earliest novel. C. wrote this book under the spell of Bulwer Lytton's romances. Fortunately, the MS. of *Antonina* so delighted his father that Wilkie was allowed to desert the tea business, to which he

had been articled, in order to study law. Still, his attainment of a barrister's degree in 1851 did not encourage him to adopt a legal career. For in 1818 he pub. a diffuse but worthy biography of his father, who had d. the preceding year, and his meeting with Charles Dickens in 1851, a meeting destined to sow a lifelong friendship between the two, finally confirmed him in his determination to pursue a literary career. C., who always strove—and with success—to give a dramatic or rather melodramatic setting to his stories, used often to take part in the theatricals organised by Dickens at Tavistock House, and it was here that his dramatised version of one of his own stories (pub. in book form in 1874), *The Frozen Deep*, was first performed (1857). Spurred on by his friend's generous appreciation of his novel *Hide and Seek* (1851), C. gladly contributed to Dickens's periodical, *Household Words*, and later to *All the Year Round*, with which the former became identified. Thus in the first, *After Dark* (1856) and *The Dead Secret* (1857) both ran as serials, a style of publication eminently suited to C.'s unique gift of riveting attention and sustaining interest, whilst his most successful ventures, *The Woman in White* (1860), *No Name* (1862), and *The Moonstone* (1865), all appeared in *All the Year Round*. Count Fosco in *The Woman in White* is almost inimitable, and unlike the almost burlesque characters of John Betteridge and Captain Wragge, is singularly free from that exaggeration of merit and defect which mars so many of his figures. Others of his pub. were *Arundale* (1866) in the *Cornhill*, *The New Magdalen* (1873) in *Temple Bar*, and some dramatised versions of his most popular stories. He collaborated with Dickens in *No Thoroughfare*. Failing health and optimismating probably account for the poverty of talent displayed in his later works. A good deal of adverse criticism has been meted out to his method of telling his tale by means of diaries, documents, and personal narratives, a method resorted to in order to give his fiction the guise of truth. See W. T. Shore, *Charles Dickens and his Friends*, 1909.

Collinson, Sir Richard (1811–83). Eng. admiral, who sailed in the *Enterprise* for the relief of Sir John Franklin. He was not successful, but in spite of this fact his addition to geographical knowledge was considerable. He ed. *Three Voyages of Martin Frobisher* for the Hakluyt Society, 1867.

Collinsville, tn. 2 m. from St. Louis, Illinois, U.S.A. Produces coal and zinc. Pop. 9700.

Collio, tn. of Italy in the prov. of Brescia, situated on the R. Mella, 14 m. N.N.E. by rail of Brescia. There are iron mines in the vicinity. Pop. 3000.

Collioure, seaport tn. of France, in the dept. of Pyrénées-Orientales, arron. of Céret, on the Mediterranean, 15 m. from Perpignan. It is N. of Port Vendres, was defended by forts till 1866, and has fishing and coasting trade. Pop. 3100.

Collision of Ships. Owing to the danger

of ships following the same or intersecting courses running into each other, 'rules of the road,' covering the conduct of neighbouring vessels in varying circumstances, have been adopted by all civilised nations. The most important of these are as follows: Any vessel overtaking another must keep out of its way. A steamship must always keep out of the way of a sailing vessel. In the case of two sailing vessels, the one running free keeps out of the way of the one close hauled; or, if both are close hauled, the one on the port tack keeps out of the way of the one on the starboard tack; the one with the wind free on the port side keeps out of the way of the one with the wind free on the starboard side, or, if both have the wind free on the same side, the one to windward keeps out of the way of the one to leeward, while the one with the wind aft keeps out of the way of the other. In the case of two steamships, when meeting end on, both turn to starboard; when crossing, the one having the other on its starboard side keeps out of the way of the other. An elaborate system of lights and signals exists to minimise the danger at night, and sirens and hooters are employed in fogs, when the chances of collision are greatly increased. The increasing use of radar (*q.v.*) navigational guides on vessels and in harbours is permitting the attainment of a high degree of safety under such conditions. Of recent years the lane system, of Amer. origin, by which each line of vessels is required to keep to a definite track, has come into vogue, particularly among the trans-Atlantic steamers. Notwithstanding all the precautions, however, the proportion of casualties due to collision, especially in the fairways leading to crowded harbours, etc., is high. With regard to the legal aspect of collisions, when the fault cannot be brought home to either party, the cost of the damage done is usually shared between the two. When the collision is clearly the fault of one party, that one bears its own loss, and pays for the damage done to the other. Collision comes within the scope of marine insurance.

Colloidion, thick colourless liquid, obtained by dissolving pyroxylin in a mixture of ether and alcohol. This liquid evaporates quickly on exposure to air, leaving a film of pyroxylin, which is colourless and rough. It is used in photography (*q.v.*). There are sev. forms of C., each with its particular use in medicine. If a little castor oil and Canada balsam be added to the solution, a flexible or flexible C. is obtained which is used for protecting wounds from the air, etc. Again, salicylic acid and Indian hemp added to the ordinary C. give salicylic C., which is used as a corn cure.

Colloids, name originally given by Thomas Graham in the middle of the nineteenth century to certain substances which, in apparent solution, do not possess the power of passing through a parchment membrane. Glue is a typical example; hence the name colloid (Gk., κόλλα, glue). Other C. are gum, starch,

caramel and white of egg, as well as protoplasm, the actual seat of life in all living organisms. More recent work has shown that any substance can be obtained in the colloidal state under suitable conditions; thus water, alcohol, and various metals have all been made to behave as C. In a colloidal solution it is believed that the particles of the colloid, which are electrically charged, are so small as to be kept in suspension by molecular bombardment from the liquid. The colloid is easily coagulated or precipitated from its solution, e.g. by the addition of alum, though coagulation can be rendered more difficult, if stability is desired, by the addition of certain protective substances such as tannin or gelatine. Coagulation may also be effected in many cases by the action of heat, as, for example, when white of egg is heated to about 70° C. A colloidal solution that retains the liquid form is known as a *sol*, but many C. can retain the colloidal state even when the solutions set to a jelly or *gel*. Ordinary cooking gelatine represents such a gel; although it appears to be dry it nevertheless contains a large quantity of water—about one-seventh of the total weight. A study of C. has thrown much light on the mechanism of life processes and has also proved of great assistance in sev. industries, notably the rubber industry and the manuf. of artificial silk.

Collo *d'Herbois, Jean Marie* (1750-96). Fr. revolutionist, b. in Paris. In the early part of his life he was a prov. actor, but on the breaking out of the revolution he was drawn to Paris. He became a Jacobin, a member of the national convention, and of the Committee of Public Safety. He was sent to crush the Girondist revolt at Lyons, and gained much ill fame by his bloodthirsty proceedings there. In 1794 he became disgraced, was banished, and d. at Cayenne.

Collo*type*, or **Phototype**, one of the photo-mechanical processes for obtaining illustrations in printing, being largely employed for facsimile reproductions, book illustrations, and pictorial post cards, and for the reproduction of paintings in colour to a great degree of accuracy. A lithographic type of machine is used for the actual printing. A film composed of an ordinary gelatinous layer and, above, a sensitive bichromated gelatine is spread on glass and allowed to dry. Exposure to light under a reversed continuous tone negative hardens the unprotected portions according to the amount of protection which the negative gives. In the printing press, after the bichromate has been washed from the soft parts, these will take up moisture in proportion to the action of the light. If an ordinary ink roller is applied to the film, the unmoistened and hard portions will freely absorb ink, and the remaining parts proportionately to their degree of wetness.

Collusion, in a wide sense, connotes any agreement between two or more persons to defraud another person of his rights, or to attain an object forbidden by law. In a narrower sense it denotes the particular fraud of a secret bargain between

two or more persons whereby one person agrees to bring a bogus action against the other or others, so as to obtain a judgment, verdict, or decision which could not be obtained if the court knew all the facts. A judgment obtained by C. is void, but in the former state of Eng. real property law, and in most ant. systems of law, collusive or fictitious suits to obtain a result not obtainable by existing principles of law were effectual under certain conditions. In a still narrower sense C. denotes an agreement between a husband and wife, whereby one spouse agrees to commit or to appear to commit a breach of the marital duties so as to enable the other to obtain a divorce or judicial separation. Such an agreement is an absolute bar to divorce, and by the Matrimonial Causes Act, 1857, the court is bound to dismiss the petition. Before the law was amended by the Matrimonial Causes Act, 1937, the court was bound to satisfy itself that the petitioner had not 'connived at or condoned' the adultery. Under this Act the petitioner must satisfy the court that 'there has been no collusion, connivance, or consent.' Though the Act uses the word collusion for the first time in a statute, it does not state how the court should exercise its duty of inquiry. It would seem, however, that if the court is not satisfied, it should, before dismissing the petition, either ask for witnesses to be called who might be able to assist, or call on the king's proctor. But even if the respondent were called, he (or she) could not be compelled to answer any question tending to show that he had committed adultery, unless he chose to admit it or gave evidence in denial. There is no narrow definition of collusion, but it exists where the originating of the petition is founded on an agreement between the parties or their agents. An agreement by the respondent to abstain from defending is also C., as is an agreement to pay the costs of all parties and to maintain the children of the marriage in consideration of no defence being put in. The practice of the divorce court requires both petitioner and respondent to file affidavits denying collusion.

Colm, see **COLUMBA STREET**.

Colman, George, the Elder (1732-94), was the son of Francis C., Brit. envoy at the Tuscan court, by his wife, *née* Mary Gunley, sister to the countess of Bath. Educated at Westminster and Oxford, he was called to the Bar in 1757. He did not practise, however, having succumbed to the glamour of the stage, so far as the writing of plays was concerned. A friend of Garrick, he had no difficulty in inducing that actor-manager to produce *Polly Honeycombe* at Drury Lane Theatre in 1760. The success of this piece confirmed him in his intention to devote himself to the composition of dramatic literature, and during his life he wrote a great number of plays, the best of which are, perhaps, *The Jealous Wife* (1761), and (in collaboration with Garrick) *The Clandestine Marriage* (1766). Possessed of considerable private means, he led a very pleasant existence, finding his greatest

delight in the company of Johnson, Goldsmith, and other members of the club of which he was a member. For many years he had a *liaison* with Miss Ford, a minor actress, whom eventually he married, and by her he had a son, George C., the Younger (1762-1836), who was educated at a private school, and afterwards at Oxford and Aberdeen. Like his father, he was destined for the Bar, but he, too, abandoned his legal studies and wrote for the stage. His first production in 1782, was *The Female Dramatist*. A prolific writer and adapter, the list of his plays and other works is very long. They include *The Heir at Law* (1797) and *John Bull* (1803). The father had at one time had a share in Covent Garden; the son in 1794 purchased the patent of the Haymarket Theatre; both were singularly unfortunate in their managerial ventures. In 1820 George IV. appointed him lieutenant of the yeomen of the guard, but allowed him subsequently to sell this post. He was appointed examiner of plays in 1824, which office he held until his death twelve years later. The plays of these writers, though many of their productions were successful in their day, have not held the stage, and it is doubtful if any one of them repays perusal. The younger man pub. his *Random Recollections* in 1830. See J. Genest, *Some Account of the English Stage from 1660 to 1830*, 1832; R. B. Peake, *Memoirs of the Colman Family*, 1841; and E. R. Page, *George Colman the Elder*, 1732-94, 1935.

Colman, Samuel (1832-1920), Amer. landscape painter, b. at Portland, Maine. He came to Europe and studied at Paris, Rome, and Dresden. He was the founder of the Amer. Society of Painters in Water Colours in 1866. Nearly all his works are seascapes, such as his 'Venetian Fishing Boat,' 'Two Boats on the Hudson,' and 'Sunny Afternoon in the Harbour of Algiers.'

Colmar (Ger., *Kolmar*), tn. and arron. of Alsace, and cap. of the dept. of Haut-Rhin, France), on the R. Lauch, 40 m. S.W. of Strasbourg. A branch of the Rhine and Rhone canal passes through the tn. The manufs. include cottons, woollens, silks, jute, and soap, and there are dyeing, brewing, tanning, and coach-building industries. From 1697 to 1871 the tn. was held by the Fr.: in 1871 it passed to Germany, becoming Fr. again in 1919. Pop. 46,100; arron., 95,400.

Colmenar de Oreja, tn. in Spain, 30 m. S.E. of Madrid. It possesses quarries and potteries. Pop. 6700.

Colne, tn. of Lancashire, England, situated on a trib. of the Calder, 26 m. N. of Manchester. There are manufs. of calico and mousselines-de-laine. In the fourteenth century the woollen manuf. flourished here. In the vicinity are slate and limestone quarries. Pop. 23,700.

Colne, small riv., a trib. of the Thames. It waters the co. of Essex, flowing chiefly in a S.-E. direction and passing through Colchester; the length of its course is 35 m.

Colney Hatch, hamlet in Middlesex, England, 1 m. W. of New Southgate.

Here is one of the co. of London mental hospitals (opened 1851), with accommodation for 2000 patients. In 1903 the Jewish wing of the building was destroyed by fire, which involved a loss of over fifty lives.

Colobus (Gk. *κολοβός*, docked, stunted), genus of monkeys, differing from other monkeys by the more or less complete suppression of the thumb. The C. inhabits the mt. forests of Central Africa, and is sought chiefly for the beauty of its skin which is jet-black, though the tail is white and the face brown.

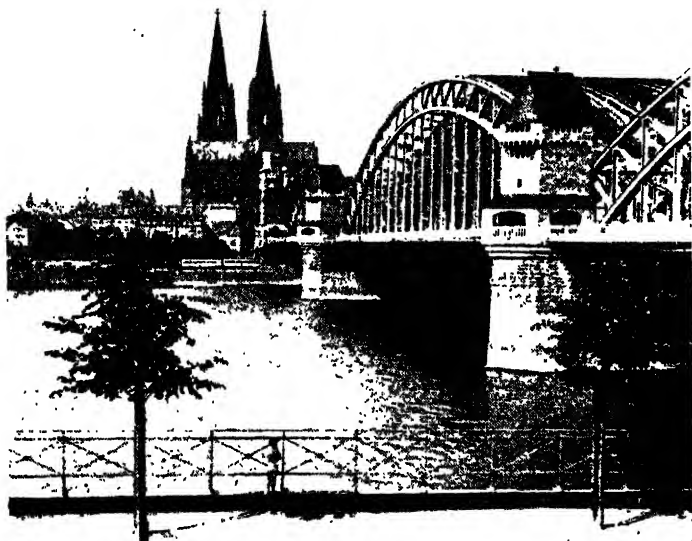
Colocynth, or **Coloquintida**, **Bitter Apple** or **Bitter Cucumber**, *Citrullus Colocynthis*. It is a gourd fruit of tropical Asia somewhat similar to an orange. The pulp in which the seeds are enclosed is used as a cathartic. From it a bitter compound, colocynthin, is extracted.

Cologna, tn. of Italy, in the Verona prov., 20 m. S.E. of Verona, with a trade in silk, hemp, wine, almonds, and grain. Pop. 10,000.

Cologne (Ger. *Köln*), city, archbishopric, free port and important commercial tn. of Germany. It is situated on the l. b. of the Rhine, 362 m. W.S.W. of Berlin, in the Rhineland; it was connected by bridges, mostly blown by the Gers., in retreat in 1945, with sev. suburbs on the r. b. Its pop. in 1939 was 768,000, and in 1946 488,000, four-fifths being Rom. Catholics. After 1882 great and important hygienic undertakings embellished and rendered wholesome the narrow, tortuous, evil-smelling streets of old C., and its extent was great augmented by the addition of the land occupied by the demolished fortifications ceded to the tn. by the State; further developments followed until 1921. C. (as indicated below) was largely destroyed in the Second World War, but the following description will indicate the chief features of the city as it was before the war. The Gürzenichstrasse, which runs along the S. side of the Gürzenich, from the suspension bridge, to intersect the old tn. from E. to W., was a recent improvement, completed in 1914. The anct. buildings of C. were of great interest, especially those of the Middle Ages, which offered fine examples of the Romanesque and Transitional styles. Among these were the church of St. Maria im Kapitol, built on a trefoil-shaped ground plan; St. Gereon, containing the relics of St. Gereon and of the 350 martyrs slain under Diocletian's persecution; St. Peter's, with its famous altar-piece by Rubens; the Minorite church, containing the tomb of Duns Scotus; and St. Ursula's Church, where were said to be the bones of St. Ursula and of the 11,000 virgins martyred near C. while on a pilgrimage to Rome. The church of St. Pantaleon, founded by Bruno, and used as a Protestant church till 1918, was handed over to the Rom. Catholics in 1922. Among the most interesting of the secular buildings of the same period were the Rathaus, with beautiful Gobelin tapestries and a five-storied tower (1407) which was furnished with a carillon in 1913; the Spanischer Bau

(Sp. building, 1611-17), by the Rathaus chapel, which was remodelled in 1921, and its upper floor used for meetings of the tn. council; the Tempelhaus, later the chamber of commerce, but formerly the seat of a patrician family; and the Wallraf-Richartz Museum. Of later date were the Zeughaus (arsenal), the Imperial Bank, and the municipal library and archives (Stadtarchiv). Almost all of these were either destroyed or damaged: only one anct. monument, the Eigelstein tower, escaped; and the Stadtarchiv was

tributed generously to the funds for carrying on the gigantic work. It was finished in 1880, and the opening ceremony took place in the presence of William I. and all the reigning princes of Germany. The two architects who successively directed the work during the nineteenth century were Zwirner, who d. in 1861, and Voigtel. The whole edifice covers a space of 7370 sq. yds., its nave of five aisles is 445 ft. long, and its transept with three aisles is 282 ft. wide; the height of the nave is about 202 ft., and that of the two towers



D. McLeish

THE RHINE AND HOHENZOLLERN BRIDGE, COLOGNE, 1939

little affected. Generally, however, movable fittings and works of art were adequately protected *in situ* or removed to safety in repositories in other parts of Germany. But by far the prin. object of interest in C. was and remains its Dom or cathedral, one of the finest specimens of Gothic architecture in Europe. Its corner-stone was laid by Archbishop Conrad of Hochstaden in 1248, the sanctuary was dedicated in 1322, the nave was ready for use in 1388, the S. tower had reached a height of about 180 ft. in 1447. Then the work was interrupted entirely for 400 years. In the nineteenth century it was resumed chiefly through the efforts of Sulpice Boisseree, who prevailed upon the crown prince, afterwards Frederick William IV., to use his influence to get the cathedral completed. Great popular enthusiasm was roused and all—Catholics and Protestants alike—con-

tributed generously to the funds for carrying on the gigantic work. It was finished in 1880, and the opening ceremony took place in the presence of William I. and all the reigning princes of Germany. The two architects who successively directed the work during the nineteenth century were Zwirner, who d. in 1861, and Voigtel. The whole edifice covers a space of 7370 sq. yds., its nave of five aisles is 445 ft. long, and its transept with three aisles is 282 ft. wide; the height of the nave is about 202 ft., and that of the two towers

C. was founded by the Ubii, who were

compelled by Agrippa to migrate from the right to the left bank of the Rhine. In A.D. 51 Agrippina, mother of Nero, founded here the Colonia Agrippinensis, a colony of Rom. veterans. In 308 Constantine began a stone bridge, which was afterwards destroyed by the Normans. From the end of the fifth century C. belonged for a long time to the Franks. Charlemagne raised its bishopric to an archbishopric. During a long period the archbishops and the citizens were continually at variance, but municipal independence was finally estab. by the battle of Worringen, 1288. Its univ., which was estab. in 1388, had before the First World War some 2600 students and about 200 profs. and teachers (1936). The theological faculty was Protestant. The modern univ. was built in 1904 as a commercial academy and was re-founded in 1919. The first commercial fair, the Kölner Messe, was held in 1924, on the Rhine below the Hohenzollern Bridge. An academy of practical medicine was estab. in the univ. in 1919 by the municipality. In the thirteenth, fourteenth, and fifteenth centuries C. maintained a great commercial prosperity; this was completely lost after the sixteenth century. By the peace of Campo Formio, 1797, the tn. was incorporated with France. Under Prussian rule after 1815 it made rapid progress to its subsequent position of high commercial prosperity. C. was connected by direct service of cargo steamers with London and other Eng. ports. The prin. pre-1914 industries of C. were the manuf. of sugar, chocolate, tobacco, snuff, and cigars, liqueurs, eau de Cologne, carpets, tapestry, furniture, vinegar, wax, soap, paints, lacquers, varnish, oil, silk, velvet, woollen and cotton fabrics, gutta-percha articles, machines, carriages, ropes, pumps and hydraulic presses, zinc, lead and marble ware, hats, paper, musical instruments, jewellery, etc., many of which industries during the Nazi rearmament of Germany gave place to munitions. All these industries, luxury or munitions, suffered in the destruction of the city in the Second World War.

History (1919-15).—C. was garrisoned after the armistice of 1918, by the Brit. Rhine Army of Occupation, and this occupation continued until 1925, when the forces were transferred to Wiesbaden. Previous to the setting up of the Inter-Allied Rhineland High Commission, the C. zone was placed under Sir Charles Fergusson as military governor. The Brit. cavalry patrols entered C. on Dec. 6, 1918, and Sir Charles Fergusson made his formal entry on Dec. 11, and on Dec. 12, the Brit. troops took possession of the Rhine bridgeheads. Later, on the estab. of the commission, the regime of the governor was replaced by that of a general officer commanding-in-chief, with headquarters in the famous Dom, Gen. (later Field Marshal) Sir Wm. Robertson being the first commander-in-chief of the Rhine Army. The area of the Brit. occupation was about 1034 sq. m. and the civil administration was under the C. sub-

commissioner of the Inter-Allied Rhineland High Commission, who was assisted by a number of Kreis officers. The civil administration was grafted on to the Ger. system, of which the Kreis, or dist., was the unit. Civil order was maintained partly by the Brit. military police and partly by the C. civil police. By the terms of the Rhineland agreement (which the high commission was called into being to administer) 75 per cent of the police had, for military reasons, to be recruited from the Rhineland area itself. The occupation of C. was, throughout, of a peaceful nature, and the Brit. regime was marked by a spirit of moderation. The Brit. military governor's first difficulty was in dealing with a series of strikes. The governor estab. arbitration courts, equitable solutions of labour troubles were found, and the time came when the Ger. workmen appealed to the Brit. authorities as a matter of course, for the care of the commission throughout its existence was the ever-recurrent strike. Later, under the regime of the commander-in-chief, Brit. military courts were also set up, to try all offences committed within the occupied zone. These courts gave satisfaction, and a high tribute was paid to their sense of justice at the close of the occupation, and also to the orderliness of the occupation generally, by Dr. Adenauer, the Oberbürgermeister of C., and Graf Adelmann, the Regierungspräsident, the high official responsible for the Ger. administration in the Brit. zone. A delicate period supervened when the Fr. and Belgian troops entered the Ruhr (see RUHR). The military and civil authorities in the C. area had to keep their zone free from incidents which were daily occurring in the Ruhr and in other parts of the Rhineland, as a result of the Ger. policy of passive resistance. The relations between the Brit. Army and the people of C. were always correct, and if there was no attempt by authority to promote social relations between the army and the inhab., it was because a service order was implicitly obeyed; but none the less as between the Brit. soldier and the *hausfrau* of his billet in C. relations were cordial. One beneficial effect of this sequel to the war on C. was that, for the first time in its hist., the city was free from the fetters of fortress works. For, by the peace treaty, fortification of C. was prohibited, and the fortress works existing were accordingly razed. This gave the city municipal authorities a golden chance of getting clear of C.'s encircling bonds and so extending its development laterally with the Rhine. This opportunity they were not slow to seize, as was evidenced by the tn.-planning and riv.-harbour schemes.

Bombing and capture of Cologne in the Second World War.—C. was frequently bombed in the Second World War by the R.A.F., beginning with a heavy assault on the night of March 13, 1942. On the night of May 30, 1942, over 1100 planes of all types were concentrated in a mass attack against the city lasting 90 min. It was a blow which devastated nearly

one-tenth of the entire metropolitan area, practically destroying the old tn., and wrecking whole industrial areas. This raid cost the R.A.F. some forty-four planes. There were three more devastating raids beginning June 28, 1942, in which the R.A.F. destroyed over 80 per cent of the central city area and 75 per cent of the other fully built-up dists. on the W. bank of the Rhine. In all about eighty factories were hit in the three raids. Railway communications also suffered, over 1000 wagons and 300 coaches being damaged. Cable works, shell-tube factories, chemical works, and an aluminium foundry were hit. The factories of three well-known firms—Humboldt-Deutz, makers of internal combustion engines, lorries, and tractors; Gottfried Hagen, makers of accumulators and submarine batteries; and Felten & Guillaume, cable and wire hawser makers—were all badly damaged. Some eighteen aircraft were lost in a further night attack on Oct. 15, 1942. In the first three months of 1943 C., with its U-boat equipment plants, was raided sev. times. There was a higher proportion of heavy bombers in use than in the raid of May 30, 1942, which meant that a greater weight of bombs could be dropped by fewer planes and with proportionally smaller losses. By the summer of 1943 there had been 116 raids on C., this being more than the number on any other tn. in the Ruhr (Duisburg being next with sixty raids). There were yet more attacks in 1944, and by 1945 C. was over 60 per cent destroyed, with more than 2000 ac. laid in ruins.

Amer. forces began to advance towards C. in Nov. 1944, but were held up by Rundstedt's counter-offensive in the Ardennes. When this attack was checked the Allies launched a counter-offensive in the general direction of Bastogne-Cologne. In March (1945), while the Amer. Ninth Army was pushing to the Rhine in its sector, the First Amer. Army was exploiting its successful crossing of the Roer and thrusting towards C. In the First Army drive towards the city heavy opposition was for a time encountered E. of the Erft canal, but the three Ger. armoured formations blocking the allied advance were dispersed by strong allied air attacks, and on March 5 the advance elements of 7th Corps were entering C. By the afternoon of March 7 the city was entirely in Amer. hands, the Ger. resistance having collapsed once the allied forces had reached the outskirts. This success had a profound effect on subsequent operations, as the divs. which would have been used to invest C. became available to assist in exploiting the great opportunity dramatically offered by reason of the Remagen crossing. (See further under WESTERN FRONT IN SECOND WORLD WAR.)

'Cologne Post.' The newspaper of the Brit. Rhine Army during the occupation of C. and Wiesbaden (see COLOGNE; RHINE ARMY, BRITISH). It was first issued as a daily (Mondays excepted), the first number being dated March 31, 1919. Its founder and first editor was

Capt. E. Rolston, of the E. Kent Regiment, and early in its career it received the warm co-operation of Sir Wm. Robertson and the general staff. During the taking of the plebiscite in Silesia, a daily ed. was pub. at Oppeln. The paper was printed on a flat-bed machine by Ger. compositors. When the Brit. Army of the Rhine moved to Wiesbaden, the paper ceased for a brief period, but was re-established as a bi-weekly in that tn. as the *C. P. and Wiesbaden Times*. The last number was issued on Nov. 3, 1929. The *C. P.* brought off one big 'scoop'—the text of the prin. clauses of the treaty of Versailles.

In Koblenz, the Amer. army of occupation during the brief period of its stay in Germany conducted a similar venture, called the *Imaroc News*; while the best known of the papers of the Fr. army of occupation was the *Rhin Illustré*.

Colomb, Philip Howard (1831-99), Brit. vice-admiral, inventor, and biographer, b. in Scotland. In 1852 he took part in active service in the Burmese war. He was the inventor of the system known as C.'s flashing signals, which has been universally adopted all over the world. He wrote *Essays on Naval Defence* (1893), and other works.

Colombes, tn. of France in the dept. of Seine, 7 m. N.N.W. of Paris, on the railway route from Paris to Havre. There are oil refineries, printing works, and foundries. It is noted as the place where d. Henrietta Maria, wife of Charles I. of Engl. ad. Pop. 61,000.

Colombia, N.W. republic of S. America. It is situated between 2° 40' S. to 12° 25' N. lat. and 68° to 79° W. long. It is bounded on the N. by the Caribbean Sea, on the E. by Venezuela, on the S. by Brazil and Peru, on the S.W. by Ecuador, on the W. by the Pacific Ocean, and on the N.W. by the gulf of Darien. It is divided into fourteen depts., two intendencies, and seven commissariats. Its area is estimated at some 1,600 sq. m., and there are 1100 m. of coast on the Caribbean Sea and 1040 m. on the Pacific. The earliest records of C. go back to about the year 1500, when the Sp. navigator, Alonso de Ojeda, settled on the coast near the snow-covered range of Santa Marta, which had already been discovered by another Spaniard, Rodrigo de Bastidas. But the coast is generally said to have been visited in 1502 by Christopher Columbus—whence its name. This ter. was granted to Ojeda by the Sp. Crown, and soon after the portion adjoining was bestowed upon another explorer, Nicuesa. These two ters. called respectively Nueva Andalucía and Castilla de Oro, became united in 1514 into the prov. of Tierra-firme, with Pedro Arias de Avila as its governor. With the estab. of these colonies and the discovery of the South Sea by Balboa, a direction was given to the exploration of C. The large Rs. Atrato, Cauca, and Magdalena were explored and conquered in 1536-37. Quesada penetrated along the Magdalena as far as Bogotá, the chief tn. then, and still the cap. To this part

of the country the name of New Granada was given, and this continued to be the official name until C. won its independence. Next followed expeditions to the E. and S.E. in search of the 'Gilded Man'—'El Dorado'; from this an extension of geographical knowledge was the only result. By the middle of the century Sp. power was fairly estab., and flourishing coastal tns. were springing up. In 1563 New Granada formed part of the Sp. viceroyalty of Peru, but after many vicissitudes it was constituted a separate viceroyalty in 1751. Extreme measures of taxation and exorbitant duties provoked a revolt against Spain, and from

assisted by a Cabinet of six ministers. The Congress is composed of a House of Representatives, elected by direct vote, and a Senate, elected (before 1945) by indirect vote, but, by an Act of 1915, the senators are now elected by direct vote of the electorate instead of indirectly by the departmental assemblies. Congress meets annually at Bogotá in July. Women, though conceded citizenship, are expressly debarred from voting (as are members of the army and the police) and from elective office. The prolonged Panama dispute between C. and the U.S.A. was concluded in 1922. Panama had seceded in 1856, rejoined the republic



Dr. Wilson Popenoe

A TYPICAL ANDEAN ROAD NEAR FACATATIVA, COLOMBIA

1811, when the revolution became formal, till 1821, when New Granada, Venezuela, and Ecuador became united under the name of C., incessant war was waged with Spain. The union was effected by Simón Bolívar (*q.v.*), but at his death in 1830 Venezuela and Ecuador seceded, and in 1831 C. called itself the Republic of New Granada. In 1861 it became the Republic of C.

Like all the republics of America, it is divided into two factions, the Conservatives, whose object is centralisation, and the Democrats, whose aim is decentralisation, with complete autonomy for each state. Up to 1886 its constitution was that of a federal republic; at that date its states became depts. From 1880 to 1902 civil war was waged intermittently and resulted in the triumph of the centralist forces over the revolutionaries. At the present day the executive authority is vested in a president elected for four years,

again, and again seceded in 1903. The U.S.A. recognised the independence of Panama, but it was not until 1922 that a treaty was ratified whereby the independence of Panama was estab., while C. received an indemnity of \$50,000,000 as compensation. There was another dispute in 1925, with Ecuador, arising out of a treaty recognising Peru's claim to sev. thousand sq. m. of ter. in the Amazon valley which Ecuador had ceded to C. In 1931 a boundary commission began the work of delimiting C.'s boundaries with Brazil and Venezuela as agreed by treaties, thus terminating disputes of more than a century's standing. The surface of C. is exceedingly varied. In the W. there are lofty mts.; in the E. there are vast llanos and forest plains, watered by tribs. of the Amazon and Orinoco. The mt. system of the country consists of the three spurs of the Andes, which spring out fan-like from the plateau of Pasto in the S.W.; these are the W.,

Central, and E. Cordilleras. Besides these chief ranges there are, in the N., the Sierra Nevada de Santa Marta and the low Jando range along the N.W. coast and extending into Panama. The prin. rvs. are the Magdalena and its trib. the Cauca, rising in the Central Cordillera and flowing into the Caribbean Sea; sev. tribs. of the Amazon in the E.; and the Patia, flowing into the Pacific, after making its way through a gorge 10,000 to 12,000 ft. high in the chffs. One of the tribs. of the Patia, the Carchi or Upper Guatara, is spanned by the Rumichuca Arch or Inca's Bridge of natural stone. On the Funza is the great fall of Tequendama, 480 ft. high. Other rvs. are the Cauqueta and the Putumayo. The climate of C. is determined by the double influences of lat. and altitude. Situated entirely in the tropical zone, its days and nights are of equal length, and it has two seasons—the wet and the dry. The country includes every altitude, from sea level to upwards of 18,000 ft. in the region of perpetual snow; it has therefore every temp., from that of the torrid zone to that of the frigid. The lowland portions, covered with dense forest, have an intensely hot climate; the inland mt. region is comparatively cool. The wide-stretching plateaux of the E. Cordilleras have a cool and healthy climate. This region is the most thickly populated of the republic; in it is Bogotá, the cap., 8694 ft. above the sea. The climate of the ter. of Panama is exceedingly unwholesome, and in parts of the depts. of Bolivia and Magdalena marsh fevers are rife. Sanitation is now being satisfactorily developed.

The pop. of C. is estimated at 9,521,000, of which only 160,000 are Indians. More than half are whites and half-castes and the chief centres of pop. are the upper valleys of the Magdalena and Cauca, where the climate is delightful and grain grows. The white pop. is of Sp. descent, and there are besides these the mestizos, of mixed Sp. and Indian blood, and the Indians. Slavery was finally abolished in 1852. Primary education is, and has since 1870 been, free but is not compulsory; and there are nearly 9,000 public elementary schools, with upwards of 580,000 pupils. There are 450 high schools with 10,000 pupils; and a number of vocational, agric., art. and religious schools; besides 63 colleges and univs., with 7600 students. The National Univ. in Bogotá was founded in 1572; in the depts. are four other univs.: Antioquia at Medellín, Bolívar at Cartagena, Cauca at Popayan, and Nariño at Pasto. The state religion is Rom. Catholic. The chief industries are agriculture and mining. The forests are extensive; among the trees are mahogany, cedar, fustic, and other dye-woods, and medicinal plants. The prin. productions are coffee, cotton, plantains and bananas, and, in some parts, tobacco, wheat, and other cereals. Banana exports in 1941 were over 2,250,000 stems, but owing to disease exports ceased in the following year, but in 1946 reached a total of 40,000

tons. C. is the largest producer of mild coffee, the demand for which is not affected by over-production in Brazil. Nearly two-thirds of the coffee goes to the U.S.A. Oil was discovered in 1922 and the chief wells are at Barranca on the Magdalena R., whence a pipe line runs to Cartagena, 360 m. away, with a daily capacity of 50,000 barrels. The output in 1941 was over 24,500,000 barrels. The mineral wealth is great, especially in Antioquia. There is a large annual output of gold and silver, and rich deposits of copper, lead, mercury, iron, platinum, and salt (from the mines in Zipaquirá covering hundreds of sq. in.) are found. The famous emerald mines of Muzo and Cósquez are a gov. monopoly, the former, however, is Amer. run. The manufacturing industry is relatively unimportant, but in the larger tns. many articles in common use are produced; among these are cotton textiles, shoes, hosiery, matches, sugar, liquors, flour, and bricks. The exports, in addition to gold, are coffee, petroleum, bananas, hides and skins, and platinum. The imports are textiles, machinery, metal manufs., curs and lorries, and chemical manufs. In C. there are some 2040 m. of highways, and some 4000 m. of motor highways, but though some improvement has been made in recent years in railroad and wagon road communication and riv. navigation, railways and roads are still in their infancy owing to the mountainous character of the country, which makes construction costly and difficult. The navy consists of two destroyers and five gunboats, with personnel 1500; the standing army consists of about 10,000 men. There is a daily passenger and mail service between Bogotá and Barranquilla and a bi-weekly service in concert with Pan-Am. Airways to the U.S.A. New York can be reached in two days and mail gets to England a week or nine days after leaving Bogotá. There are wireless stations at Barranquilla, Bogotá, Cali, and Cúcuta. In 1926 C. was elected to membership of the council of the League of Nations and is now a member of the United Nations Organization. The chief tns., with their pops., are Bogotá (1942), 395,000; Medellín, 199,000; Barranquilla, 159,000; Cali, 121,000; Cartagena, 90,000; Manizales, 89,000; Ibagué, 63,000; Cúcuta, 60,000; Bucaramanga, 53,000; Pasto, 50,000; Santa Marta, 50,000; Popayan, 10,000. See F. L. Petre, *The Republic of Colombia*, 1906; H. Bingham, *Journal of an Expedition across Venezuela and Colombia*, 1909; P. J. Eder, *Colombia*, 1913; L. Lévine, *Colombia*, 1914; G. Arboleda, *Historia Contemporánea de Colombia* (Bogotá) 1919; R. B. Cunningham-Graham, *Cartagena and the Banks of the Sinú*, 1920; B. Niles, *Colombia, Land of Miracles*, 1925; E. Taylor Perks, *Colombia and the United States, 1765-1934*, 1935; J. M. Henao and G. Arrubla, *History of Colombia*, 1938.

Colombo, one of the finest and largest sea-ports of Asia, and the cap. of Ceylon, with 285,000 inhab. The harbour, which has an area of 1 sq. m., and is

protected by four magnificent breakwaters, affords shelter for forty-five ocean-going steamers during the S.W. monsoon and thirty-nine during the N.E. There are a graving-dock and a coaling depot. The city extends from the Kelani R. on the N. to the fourth mile on the Gallo Road on the S., and covers 8617 ac. The European quarter is called the Fort, although the Portuguese and Dutch fortifications were demolished in 1869 as obsolete. C. has broad streets, fine buildings belonging to European firms, hotels, and cathedrals. E. of the fort lies the native business quarter, called Pettah, with mean dwellings, countless shops, and a very busy traffic. To the N. extends the quarter of St. Paul, with extensive Catholic and Anglican colleges. E. of Pettah is a nearby rural dist. covered with native huts in hedges of banana, areca, and coco-palms. The very picturesque suburb of Kutwal is chiefly inhabited by Rom. Catholic fishermen. Wolfendale church is the most interesting and complete of the few relics of the Dutch occupation. A tortoise said to have lived for 200 years is preserved in the museum in the Victoria Park, and a colossal stone lion on which the king sat to administer justice. The univ. has 300 students, and there are seven Eng. and two Sinhalese newspapers. C. is mentioned in 1346, the Portuguese took it in 1517 and named it C. in honour of Christopher Columbus. The Dutch took it from them in 1636 and surrendered it to the Brit. in 1796. C. is a port of call for all vessels bound to Australia, the bay of Bengal, and the Far E. C. was raided by seventy-five Jap. planes, operating from carriers, on April 5, 1942. Low-level and dive-bombing attacks were made on the harbour and in the Rotmainada area. At least thirty planes were destroyed. Damage was comparatively negligible.

Colon, see COLITIS and INTESTINES.

Colón, city in Matanzas prov., Cuba. 52 m. S.E. of the tn. of Matanzas. Large sugar refineries comprise the chief industry. Pop. 9000.

Colon, earlier **Aspinwall**, at the N. entrance of the Panama Canal, with 57,200 inhab. Formerly very unhealthy, it has, since the opening of the canal, a complete system of sanitation, and has greatly thrived. The trade is mostly in the hands of Syrians and Chinese. Many foreigners travel by the railway to Panama.

Colón, official designation of the Galapagos Archipelago (q.v.).

Colón Archipelago, see GALÁPAGOS ISLANDS.

Colonel (It. *colonello*, the leader of a column). In the Brit. Army the chief commander of a regiment; the grade of officer next to that of general. In 1588 the title of C. was substituted for that of captain to designate the chief officer of a regiment. In the artillery and engineers the C. is always the real acting commander, but the lieutenant-C. is the real commander of an infantry battalion or of a cavalry regiment. In the latter case the

office of C. is a sinecure, but it is to be noted that this applies only to a regimental C. as distinct from a C. on the staff. A regimental colonelcy carried with it the pay of £1000 a year, and was given to a general on his retirement and as a reward for long service. But, as the result of a decision of 1888, this rule died out and only those having at that date a vested right to such an appointment came under the old order of things. Henceforth those officers only may become Cs. who have received a brevet for distinguished conduct. There are besides certain appointments which carry with them the rank of C.; those of aide-de-camp to the sovereign, of assistant adjutant-general, and of commander of a regimental dist. being the chief. After the First World War the rank of C.-commandant displaced that of brigadier-general in the Brit. service, but in 1928 brigadier displaced C.-commandant. Cs. of regiments are now selected from any officer of the rank of full C. and upwards who has served with distinction in the particular regiment. They retire on attaining the age of seventy years. At present Cs.-commandant of the Royal Artillery, Royal Engineers, etc., correspond somewhat to the C. of a regiment. In substantive rank they are general officers with distinguished service records. In the King's Royal Rifle Corps and in the King's Royal Rifle Corps and Rifle Brigade they are equivalent to Cs. of regiments. The rank of C.-in-chief of a regiment is an honorary office, and is held in various regiments by the king and other members of the royal family, by foreign kings and princes and other persons.

Colonia, dept. in Uruguay, on the Plata, with an area of 2185 sq. m. There are fertile plains and valleys, which are under cultivation. European colonists have settled there, and are engaged in stock-raising and agriculture. Pop. 100,000. C. del Sacramento, on the Plata, opposite Buenos Aires, is the cap., and possesses a fine harbour, with capacious docks. Pop. 8500.

Colonial Agents, name given to agents in England who act on behalf of the different Brit. colonies. (See under CROWN AGENTS FOR THE COLONIES.) The agent-general is an official who represents a Canadian prov. or Australian state in London, and acts for the crown colonies. Most of the N. Amer. colonies before their separation had special salaried agents in England to superintend their affairs.

Colonial Civil Service. Service in the crown colonies, protectorates, and mandated terr. is by selection by the secretary of state for the colonies through the appointments dept. of the Colonial Office. The service includes a considerable number of specialists in tropical medicine, agriculture, forestry, etc., and of the 200,000 employees in the colonial service some 20 per cent of appointments are made from Whitehall, the remaining 80 per cent, which includes most of the minor posts, being made by the local or

colonial gov. concerned. The service is now regarded as a unified service with pay and conditions of service assimilated as far as practicable so that transfers from one colony to another may be made without loss of emoluments or pension rights. See Sir A. Bertram, *The Colonial Service*, 1930; Sir C. J. Jeffries, *The Colonial Empire and its Civil Service*, 1938.

Colonial Conference, African, first gathering ever held of the political

hear at first hand something of the problems, hopes, and expectations of the metropolitan power; and to discuss policies for education, improvement of agriculture, health, public relations, and economic development. The conference was not intended to produce answers to so many different practical questions demanding solution in every African colony. The general answer to all such questions was the same—the need of men, money,



New York Times Photo

KING GEORGE VI. WITH AFRICAN COLONIAL CONFERENCE DELEGATES
AT BUCKINGHAM PALACE

On the left of the King is Chief Nana Sir Taibu Darku (Gold Coast); and on his right, the Emir of Katsina.

leaders of Brit. colonial Africa met at Lancaster House, London, in Oct. 1948. In all there were some seventy delegates, including chiefs from the four W. African colonies, emirs from Nigeria, tribal leaders from the E. African ter. (including mandated Tanganyika). Europeans representing the interests of trade and mines, and Arabs and Indians settled permanently in Brit. African colonies. The conference had three objectives: to give the delegates from different countries an opportunity to know each other, this being the first occasion on which W., E., and Central Africans, white and black together, have ever met in formal conclave; to enable African delegates to

and initiative and co-operation. The main purpose of the conference was achieved by enabling the delegates to return to their countries with a clearer idea of the difficulties, the knowledge that others shared their problems, and with the conviction that they were part of a greater community and had behind them the goodwill and the practical resolution of the Brit. nation.

Colonial Corps, bodies of troops raised in the colonies in which they are intended to serve, and officered by officers belonging to the regular army of the country to whom the colony belongs. Formerly they were, as a general rule, kept entirely in the colony in which they were raised and never

used for foreign operations. But in both world wars Fr. native levies fought outside their own continent, and Brit. W. and E. African native troops served in various African campaigns outside their own countries. In the First World War Brit. native W. African troops were in the campaigns against the Gers. in the Cameroons and Ger. E. Africa. In 1910 the Nigerian and Gold Coast regiments of the Royal W. African Frontier Force went to Abyssinia and fought through the campaign there against the best It. forces. Following the collapse of It. resistance in E. Africa it was decided to send a substantial force of E. African troops (askaris) of the K.A.R. (King's African Rifles (*q.v.*)) to Asia to fight against the Jap. Early in 1942 the first E. African troops sailed for Ceylon. It was not possible to send any W. Africans since all the troops available, both those who had served in the E. African campaign (Abyssinia and It. Somaliland) and those who had remained in W. Africa, were needed to protect the Brit. W. African colonies from attack through Vichy W. Africa. One brigade of E. Africans took part in the successful allied invasion of Madagascar. Many W. African troops—largely mechanised—fought in Libya and, with the turn of the tide at El Alamein and the N. African landings, it became possible for the first time to use large numbers of African troops in the Far E. In 1943 it was decided to send a W. African expeditionary force of two divs. to Burma. Additional E. African brigades were sent to the Far E. but it was the 81st W. African Div. which, first of all the African troops, found themselves fighting the Jap. The capture of Akyab and Pagoda Hill were among the exploits in which they took part. Other units of this force were part of Wingate's Chindits in central Burma. Meanwhile the 11th E. African Div., having completed intensive training in Ceylon, went to Burma and took over the spearhead of the allied attack in the Tamar area from the 23rd Indian Div. These askaris fought their way through the appalling weather conditions of the monsoon, down the Kalaw valley, taking Kalembo and Kalewa, and opening a way for the later advances into the heart of Burma. The great expansion in the African forces meant that many thousands of European officers and N.C.O.s had to be found to serve with them. Although any African is eligible for a commission, all officers in the E. African forces and all but a handful in the W. African forces still have to be found from Europeans. Other well-known C. C. are the Malayan Volunteer Defence Force (composed of Europeans, Chinese, and Malays) and the Hong Kong Regiment. Since the First World War conscription has been introduced for whites in Kenya (for home defence); and in 1939 a measure of conscription was introduced in Hong Kong.

Colonial Development and Welfare, policy of the Brit. Colonial Office in handling the economic and social problems of the dependent empire. In

the last decades of the nineteenth century the issue appeared to be simple, for in every country, Burma, Malaya, W. or E. Africa, the Pacific Is., bloodshed and slavery had been replaced by peace, freedom, order, and even-handed justice. But early in the twentieth century an expanding electorate began to demand drastic measures to cure the economic and social dislocations and injustices which the upheaval of the industrial revolution had produced, and that demand has, in course of recent years, been voiced on behalf of colonial peoples in accordance with the Brit. conception of trusteeship in relation to native people (*see* COLONIAL TRUSTEESHIP), acceptance of which denotes a sense of moral obligation. The colonies, however, suffered from the want of capital. For though they have a value as fields for investment, with the added advantage that the investor can operate in a sphere in which his own gov. has the political control, it is nevertheless true that, with few exceptions Brit. capital has avoided the modern colonial empire and favoured more lucrative investment in foreign countries. It is estimated that in 1938 the total listed investment in the Brit. colonies amounted to about £172,000,000 in public loans and £209,000,000 in private enterprises, whereas the total Brit. overseas investment was estimated at no less than £2,592,000,000. The amount of Brit. capital invested in the colonies is therefore only a small proportion of our total overseas investment. Of public loans raised by colonial govts. some 75 per cent has been devoted to railway and port developments and the colonies have had the benefit of rates of interest only slightly higher than internal United Kingdom loans. The need of the colonial empire, with its 60,000,000 people, is for far more capital for development and social services. The dependent ters, which can attract capital by reason of rich mineral and other natural resources are very few. The rest are poor countries struggling under a burden of intractable tropical diseases, such as trypanosomiasis, malaria, yaws, leprosy, beriberi, and so forth; crop pests, such as leaf spot, the ruin of banana crops, and locusts; malnutrition, isolation, and ignorance. In these areas the prerequisites of an adequate standard of living—reasonable immunity from disease, a wholesome diet, improved education, housing, and transport—have not yet been achieved. Such ters, could make little headway within the limits of their own revenue resources. In 1929 a Colonial Development Advisory Committee was appointed by the secretary of state for the colonies, under the authority of the Colonial Development Act, 1929. Its function was to consider and report on applications for assistance from the Colonial Development Fund, in furtherance of schemes likely to aid and develop agriculture and industry in the colonies, protectorates, and mandated ters, and thus promote commerce with, or industry in, the United Kingdom by any of the means specified in the first

section of the Act. These means were comprehensive and, as exemplified by applications made by various colonial govts., were wide enough to include the construction of deep-water harbours; afforestation; hospitals and hospital equipment; improved medical services; development of schools for both European and native children; estab. of malarial research units; public health schemes; railway development; housing schemes for natives; stations for coffee and sisal research and research into plant ecology generally; erection of factories; construction of new telegraph and telephone units. The committee's duty was to examine the advantages of any particular schemes proposed, and, generally, the allocation of cost as between imperial and colonial funds. The ultimate sanctioning authority was (and is) the Treasury. But the amounts obtainable under this Act were very restricted and, broadly speaking, schemes for development of capital works were out of the question unless the particular colony submitting such schemes was prepared to maintain such works out of its own current financial resources. Early in 1940 the Brit. Gov., which had already made a number of special grants for technical research and had, from time to time, advanced loans to help hard-pressed colonies to balance their budgets, made an important statement of policy. 'It,' it declared, 'full and balanced development is to be obtained, and if colonial governments are to be placed in a position to maintain administrative, technical, and social services at proper standards, some assistance from outside is necessary at this stage.' With this statement came the Colonial Development and Welfare Act, which authorised expenditure up to £5,000,000 a year for a period of ten years, and an additional grant up to £500,000 a year for research. At the same time, some £10,000,000 worth of loans previously advanced to the colonies was cancelled because the payment of interest would have imposed too severe a strain on colonial funds. In 1943 a Colonial Products Research Council was set up to deal with the problems of research for which the £500,000 a year had been allocated. The function of this council is to investigate the uses which can be made of raw materials produced in the colonies and to initiate and supervise research with the object of increasing their uses. An Act passed in 1945 extended the grant period from 1951 to 1956, more than doubled the rate of expenditure, and abolished the practice of surrendering the unexpended portion of the ann. grant to the Brit. Treasury. Within the Colonial Office steps were taken to set up two committees—a Development Committee and an Economic Policy Committee. The first of these committees will consider the ten-year plans for development sent in by all the colonies, and the second will consider how the colony should organise its economy so as to be in a position to defray the expenditure involved in the plan. The work of these two committees

is co-ordinated by a new Colonial Economic and Development Council presided over by the secretary of state for the colonies. See H. E. Egerton, *British Colonial Policy in the XXth Century*, 1922; H. W. Foster and E. V. Bacon, *Wealth for Welfare*, 1943; A. G. Russell, *Colour, Race, and Empire*, 1944; D. Tangye, *One King*, 1944; Lucy Mair, *Welfare in the British Colonies*, 1944; J. Huxley and Phyllis Deane, *The Future of the Colonies*, 1944; *Social Policy in Dependent Territories* (International Labour Office), 1944; *Fabian Colonial Essays*, ed. by R. Hinden, 1945; J. S. Furnival, *Colonial Policy and Practice: a comparative Study of Burma and Netherlands India*, 1948. See also COLONIAL CONFERENCE, AFRICAN.

Colonial Issue. The issue of the ownership of colonies in terms of economic or political internationalism. In this, its wider significance, the issue, so far as the nations owning great colonial empires are concerned, is only of academic interest, especially to Britain, whose colonial empire, in which all nations are free to trade on equal terms, in no sense a challenge to the rights and dignity of other nations. In its narrower meaning, it referred to the Ger. claim to the restoration of the colonies she lost under the treaty of Versailles—a claim which was advanced when the Nazis acquired control in Germany and reiterated with threats up to the outbreak of war in 1939. It is this aspect only of the C. I. that will be considered in this article.

The chief products from the ters. shown in the table on p. 71 are S.W. Africa, diamonds, hides, livestock, butter, and vanadium; Tanganyika, sisal, cotton, coffee, and ground-nuts; Camerouns and Togoland, cocoa and palm oil; New Guinea, gold and copra; Pacific Is., gold and copra; W. Samoa, copra; Nauru, phosphates. The total gold output averaged £1,715,000 in the years 1934–36; and diamonds £503,000 for the same period. The total value of exports in 1936 into Germany from these former colonies expressed as percentage of Ger. imports of the same kind from all sources was as follows: phosphates, 75 per cent; oil seeds and ground-nuts, 14 per cent; flax, hemp, and sisal, 63 per cent; coffee, 11 per cent; cocoa, 36 per cent; hides and skins, 3½ per cent; bananas, 27 per cent; tropical wood, 23 per cent; rubber, 3½ per cent; and cotton, 2 per cent.

The claim to the restoration of the Ger. colonies was ostensibly based on the now familiar *Lebensraum* theory. The Ger. political leaders averred that a nation of 65,000,000 people must have colonial living-space and, further, that colonies were essential for the production of foodstuffs. But, from the foregoing statistics, it will be seen that, even to-day, the white pop. is comparatively trifling. No obstacle has ever been placed in the way of Ger. trade with their former colonies. The restrictions on Ger. colonial trading were due solely to exchange difficulties created by the Ger. Gov. The hollowness of the Ger. pretensions on their economic side was exposed by the Reich's rejection of

the offer to have their economic claims examined by the League of Nations. So small was the percentage (not more than 2) of pre-war Ger. colonial trade to the total Ger. import trade, that the inference may be drawn that the colonies were wanted mainly for strategic purposes and for reasons of prestige. At Nuremberg, in Sept. 1937, Hitler reiterated the Ger. claim 'to have colonies to supply her with food and raw materials.' Asked at this Nazi congress by foreign journalists whether Germany, if colonies were acquired, intended to construct naval bases there, Hitler replied that Germany had never had naval bases in her colonies before the war and that colonies were worth nothing if an enormous armed force had to be maintained to protect them.

mandates; and the official answer was always to the effect that the mandates, having been conferred by the allied and associated powers, were, juridically, interminable (*see further under MANDATE SYSTEM*). In 1937 Mr. Neville Chamberlain, then chancellor of the Exchequer, indicated that the colonial question was not one which could be considered in isolation, but was only part of the much larger questions implicit in the then disturbed international situation; and further, that Britain was not the only colony-owning power, and that the colonial issue could only be raised in conjunction with other colonial powers. In Dec. 1938 Mr. Chamberlain (as Prime Minister) quoted with approval his predecessor, Mr. Baldwin's, dictum of 1935—

THE PRE-VERSAILLES TREATY GERMAN COLONIAL EMPIRE

	Area sq. m.	Population		Total Exports (1936) £	Mandatory
		White	Native		
Ger. E. Africa: Tanganyika Ter. Quanda and Urundi	374,100	9,100	8,500,000	5,000,000	Great Britain Belgium
Ger. S.W. Africa Cameroons (Kamerun)	317,700 200,000	30,700 2,700	300,000 3,200,000	3,000,000 2,500,000	Union of S. Africa Great Britain (part) France (part)
Togoland	35,000	400	1,100,000	750,000	Great Britain (part) France (part)
New Guinea	93,000	3,800	500,000	2,000,000	Australia
W. Samoa	1,150	600	55,000	250,000	New Zealand
Pacific Is.: Marlann Is.) Caroline Is.) Marshall Is.)	740	100	50,000	1,000,000	Japan
Nauru	—	200	2,000	500,000	Great Britain, Australia, and New Zealand jointly
Total	1,042,190	47,900	13,707,000	15,000,000	

At Augsburg, in Nov. 1937, he again raised the 'demand for colonial living room,' saying that 'what people do not care to hear to-day, they will be unable to ignore in a few years,' and he even claimed that the most difficult part of the preparatory work had already been accomplished in impressing the world with Germany's vital need for colonies. In these and similar characteristic utterances it will be observed that Hitler was gradually introducing a more and more menacing note in his demands, though later at Munich he told Mr. Chamberlain that Germany would never go to war with Britain over the C. I. It may be noted here that Hitler preferred his claims solely against Britain, his palpable object being to indicate to Germany that Britain was her real enemy; while his Anti-Comintern Pact (*q.v.*) made it impossible for him to raise the issue with Japan.

In the Brit. House of Commons many questions were asked in the intervals decades on the duration of the

that no Brit. ter. and no ter. under Brit. protection or mandates would be transferred from Brit. sovereignty or authority without the fullest regard being paid to the interests of the pops. of the ters. concerned—an answer which was characterised by a certain element of ambiguity and led, among other things, to the formation of the Tanganyika League of Europeans, pledged to oppose any changes in that ter. Gen. Smuts, at Maritzburg (1938) was more explicit. 'South-West Africa,' he said, 'was entrusted to the Union as a sacred trust by the League. If the necessity arose we would fight for it because it is essential for the safety of South Africa.' In the same year M. Daladier, the Fr. Prime Minister, said that there could be no question of any cession of Fr. overseas ter.; and in the Fr. Cameroons the Union Camerounaise, consisting of both European and native leaders, had, like the Tanganyika League, also taken up a strong stand against any transfer of ter. Both bodies contained

numerous Ger. members, and would, doubtless, have contained most of the Ger. nationals but for the fact that those who refused to acknowledge the Nazi regime thereby jeopardised the personal security of their relatives in Germany. Addressing the so-called Greater Ger. Reichstag in the Kroll Opera House, in Jan. 1939, Hitler said: 'One thing or the other will happen. Either property will be distributed on the basis of force, and then force will revise distribution, or distribution will be based on right and reason, and then it will be impossible for a few powers for ever to possess all the colonies.'

Colonial Law. The law to which a colony becomes subject on its foundation depends on the mode of acquisition of the colony, whether by settlement, conquest, or cession. Eng. subjects are said to carry their law not only to new and uninhabited colonies, but, to a certain extent, also to ceded and conquered colonies; but they carry no more of the Eng. law than is adapted to the particular circumstances of the infant colony, e.g. the Mortmain Acts (*q.v.*) were inapplicable to New S. Wales, the Marriage Acts to India, but the Bankruptcy Act, 1882, has been held to be of universal application. The Eng. eccles. law applies to settled colonies because there is no estab. church in them. By the provisions of the British Settlements Act, 1887, the king may, in the case of barbarous and desolate colonies having no legal form of gov., make law and establish courts and delegate all necessary powers of gov. to any three or more persons resident there. When a settled colony has been granted a legislative institution the Crown stands in the same position to that colony as it does to the United Kingdom. In the case of conquered and ceded countries, the existing law remains until changed by the conqueror, e.g. O.F. law applies to civil matters in Canada unless altered by the dominion legislature. Laws at variance with the fundamental principles of the Brit. constitution cease at the moment of conquest or cession. The king has power by Order in Council, or by charter of justice under the Great Seal, to make new laws. But having once granted legislative powers to a colony, he ceases to have any legislative power in regard to local matters. The king's legislative powers are the same in most respects as regards both ceded and conquered countries, but ceded colonies may have made conditions as to maintaining local laws, customs, and, in general, such conditions will be binding. By the Colonial Laws Validity Act, 1865, a C. L. is invalid only to the extent to which it may be repugnant to any Act of Parliament having reference to the particular colony, and no C. L. is to be deemed void by reason merely of instructions given to the governor by any instrument other than the instrument authorising him to give his assent to the passing of laws. By the same Act every colonial legislature has power to establish courts of Judicature, and to make laws respecting the constitution, powers, and procedure of

such legislature. A change in the operation of dominion legislation, especially in the direction of giving such legislation extraterritorial effect, was foreshadowed by the decisions of the Imperial Conferences, 1926 and 1930. The sequel was the famous Statute of Westminster, 1931. By virtue of this Act, the Colonial Laws Validity Act, 1865, no longer applies to any law made after Dec. 1, 1931, by a dominion Parliament; so that no law so made will be void or inoperative for repugnance to Eng. law or to any future Act of Parliament of the United Kingdom, and a dominion Parliament now has power to repeal or amend any such Act in so far as it is part of the law of the dominion. No Act passed after Dec. 1, 1931, will be deemed to extend to a dominion unless it is expressly declared in the Act that the dominion consented to its enactment. But the new Act confers no power to repeal or alter the constitution or the Constitution Act of Australia or the Constitution Act of New Zealand otherwise than in accordance with the pre-existing law; nor can the Australian Commonwealth Parliament legislate on any matter within the authority of the states of Australia not being a matter within the authority of the Parliament or Gov. of the Commonwealth. Similarly, there is a saving clause for the British North America Acts, 1867-1930, which Acts are, in effect, the constitution of Canada. It is further provided that none of the sections 2 to 6 of the statute will apply to Australia, New Zealand, or Newfoundland unless their Parliaments expressly adopt the statute. Australia delayed adoption until 1912, when by an Act of that year it adopted the material sections with effect from Sept. 3, 1930. New Zealand, in 1946, set up a committee to consider the question and the effect on the laws of New Zealand. Newfoundland (*q.v.*) has now joined the Confederation of Canada. The report of the conference of 1929 on the operation of dominion legislation (Cmd. 3479) also considered the advantages which might accrue from the estab. of a commonwealth tribunal as a means of determining differences and disputes between members of the Brit. Commonwealth; and the Imperial Conference agreed that the tribunal should be constituted *ad hoc* in the case of each dispute to be settled, and that it should consist of five members, including the chairman, neither the chairman nor the members to be drawn from outside the British Commonwealth of Nations. No such tribunal, however, has yet been convened, though the Brit. Gov. offered to refer the Irish land annuities dispute to such a body (*see* VALERA, EAMON DE; EIRE). Broadly speaking it may be said that the states which have most readily availed themselves of the Act are those like the Union of S. Africa and Ireland, in which there is a strong republican or nationalist element hostile to continued membership of the Brit. Commonwealth of Nations. The outbreak of the Second World War, however, showed that in the result the

greater part of S. Africa co-operated in the Brit. war effort. Eire remained neutral.

Colonial Office. In England the earliest separate organisation for the administration of colonial affairs was a committee of the Privy Council appointed by the king in council in 1660 'for the Plantacons.' By 1695 certain limited powers in regard to the colonies were vested in a commission known as the Board of Trade and Plantations, but the executive work was done by the secretary of state for the S. dept.

In 1794 the secretary of state for war had assumed control, but in 1854 the outbreak of the Crimean war led to the appointment of a secretary of state for the colonies to relieve the war secretary of colonial business, and the secretariat for the colonies has continued a distinct dept. ever since. The office, the importance of which was greatly enhanced under the secretaryship of Joseph Chamberlain at the end of the last century, later comprised three depts.: (1) The dominion dept., which dealt with self-governing colonies and the imperial conferences; (2) the dept. for the Crown colonies and protectorates; and (3) the general and legal dept. After the First World War a Middle E. dept. was set up to deal with business relating to the mandated ters. of Palestine and Mesopotamia (re-named Iraq, q.v.). In 1925, a new secretaryship of state for dominion affairs was created, and as a result the Dominions Office was formed to take over from the C. O. business connected with the self-governing dominions, including Irish Free State (now Eire), the self-governing colony of S. Rhodesia and the S. African ters., Basutoland, Bechuanaland, and Swaziland, and business relating to the imperial conferences (see IMPERIAL CONFERENCE). For some years both secretaryships were held by one minister, but in 1930 a separate minister was appointed to the dominions secretariat, with a separate parl. under-secretary. The administrative powers of the colonial and dominions secretaries do not embrace India nor the Channel Is. and the Isle of Man, the two latter being under the Home Office. The affairs of Egypt and the Sudan are under the charge of the Foreign Office. But with these exceptions the two secretaries of state speak for the whole of the Brit. oversea dominions, colonies, protectorates, etc., upon all matters arising in Parliament in regard to such dominions, etc. Colonial governors are appointed by the Crown on the recommendation of the secretary of state for the colonies, while other executive and all judicial appointments are made directly by the secretary of state. United Kingdom High Commissioners in the various dominions are appointed by the secretary of state for dominion affairs. Governors-general are appointed by the king on the advice of his ministers whether in the United Kingdom or in the dominion concerned. In recent years, especially since the close of the Second World War, the staff of the C. O., consistently with the advance of public opinion on the economic

development and social welfare of the colonies, has been considerably expanded, especially in the number of its specialist advisers. At present the secretary of state for the colonies has (apart from legal and medical advisers) advisors on development planning, agriculture, animal health, education, engineering appointments, fisheries, forestry, and labour. The enhanced importance of economics and sociology in the administration of the colonial empire is reflected in the formation of a number of new depts.—commercial relations and supplies, finance and development, research, social service, and welfare. See further under COLONIAL DEVELOPMENT AND WELFARE.

See Sir A. W. Renton, 'The History of the Colonial Office' (*Juridical Review*, July, vol. 1, 1889); H. E. Egerton, *A Short History of British Colonial Policy, 1660-1909*, 1922; Sir C. V. Fiddes, *The Dominions and Colonial Offices*, 1926; Sir A. Bertram, *The Colonial Service*, 1930; W. P. Morrell, *British Colonial Policy in the Age of Peel and Russell, 1841-52*, 1930; J. Garvin, *The Life of Joseph Chamberlain* (vol. iii.), 1934; H. L. Hall, *The Colonial Office*, 1937; C. Jeffries, *The Colonial Empire and its Civil Service*, 1938; Sir H. Stanley, *Colonial and Dominion Office Administration*, 'Public Administration', Oct. 1938; and 'Work of the Colonial Office' (*The Story of the Brit. Empire*, part v.), 1939.

Colonial Trusteeship. In the broader sense, the concept of C. T. originates in Burke's famous declaration, in his speech on the India Bill, 1785, that Britain had become directly responsible for the welfare of the Indian peoples 'as a sacred trust'. Acceptance of that principle laid the foundations for the nineteenth-century Brit. doctrine of C. T. With varying degrees of success this principle has in course of time led to the present position when self-gov. for India is in sight (see further under INDIA). In the Brit. colonial empire proper (i.e. as opposed to the dominions), the principle was implicit in the long political campaign for the abolition of the slave trade and, later, of slavery, in the Brit. W. Indies and, under Sir John Kirk's influence, in E. Africa where the Arab slave trade was the chief factor in directing Britain's attention to that region (consult R. Coupland, *The Exploitation of East Africa*, 1939; and also *The British Anti-Slavery Movement*, 1933). Sierra Leone may be regarded as an illustration of the principle, for the original settlement was formed for the benefit of liberated African slaves in 1792. Reinforced by a growing interest in Christian missionary effort, the movement for the abolition of slavery led the nation as a whole to accept a new standard of conduct towards subject peoples. As has been aptly said by Lord Hailey: 'The principle of trusteeship speedily became the touchstone applied by humanitarian interests in the assessment of colonial policy and by statesmen in justifying their conduct in its administration.' Again and again it has exerted its influence when issues have arisen in which native interest

have been at stake, and has often done so with decisive effect.' In the Brit. tropical dependencies in Africa the doctrine gained fresh impetus from the classic work, *The Dual Mandate*, by Frederick (later Lord) Lugard (1929), the fundamental theory of which is that the white man's trust has a dual purpose: the development of indigenous resources for the benefit of all nations, and the promotion of native welfare. Trusteeship is also implied in the principle of 'indirect rule,' which institution owes so much to Lord Lugard. The principle underlying this policy of 'indirect rule,' which is followed in the Brit. African dependencies and in the Federation of Malaya, is that native institutions are in themselves of value as agencies of gov., and that a replica of European political institutions in Africa or elsewhere is not the aim of policy most to be desired even in a distant future (Hailey). The policy of indirect rule is peculiarly Brit. in conception, and its validity has been challenged by other colonial powers as late as 1939, notably by France and Italy. As it has developed in practice . . . emphasis has shifted from the preservation of native institutions to their development for new functions to fit them to play their full part in the modern world. The concept of C. T. is also illustrated in the administration of Kenya in the principle of the 'paramountcy of native interests' as enunciated by the Devonshire White Paper of 1923 (Cmd. 1922), where it is stated that 'primarily Kenya is an African territory, and His Majesty's Government think it necessary definitely to record their considered opinion that the interests of the African natives must be paramount, and that if and when those interests and the interests of the immigrant races (i.e. the British, Indians, Arabs, and others) should conflict, the former must prevail. . . . In the administration of Kenya His Majesty's Government regard themselves as exercising a trust on behalf of the African population, and they are unable to delegate this trust, the object of which may be defined as the protection and advancement of the native races.' But it had always been made clear that the paramountcy of native interests is not to be interpreted as justifying neglect of the vital interests of the European community, and that the ultimate trusteeship of the imperial gov. does not preclude the grant to that community of a share in the gov. of territories which they have made their home. The Churchill White Paper of 1927 (Cmd. 2904) dealt with these two points by enunciating the principle of the 'dual policy' of economic development—increasing native production in the native reserves *pari passu* with that of European plantations—and the imperial gov.'s 'desire to associate more closely in the high and honourable task (of trusteeship) those who, as colonists or residents, have identified their interests with the prosperity of the country.' The principles implicit in the concept of C. T. have received practical application in recent

years, partly through the stimulus of the writings of the Fabian school of thought, in the form of greatly extended social services and colonial welfare generally, through the operation of the provisions of the Colonial Welfare and Development Act, 1910. Trusteeship, on the political side, and the dual mandate on the economic, have in these days been merged in the more constructive relationship of senior and junior partners. The principle of C. T. is also implicit in the concept of mandates (see MANDATE SYSTEM), by which provision was made, after the First World War, through the League of Nations, for the administration by the Allied and Associated Powers of enemy colonies—the underlying principle being that in the strenuous conditions of the modern world these territories, stood in need of special mandatory gov. by way of tutelage, subject to the moral supervision of the Permanent Mandates Commission of the League of Nations to prevent exploitation of their peoples by the mandatory.

United Nations' Declaration on Colonial Policy and the International Trusteeship System.—During the 1930s when the colonial demands of Germany and Italy seemed to show that the possession of colonies was one of the causes of international friction, some publicists and politicians thought the solution of what was known as 'the colonial question' lay in bringing all colonies alike under some form of international control, so as to ensure that the non-colonial powers could enjoy the same range of economic opportunities as the colony-owning powers. But in the preoccupations of the Second World War the matter ceased to excite any special interest, though interest revived to some extent through Amer. criticisms of Brit. 'imperialism.' The more dispassionate section of Amer. public opinion, however, could not accept the Brit. conception of C. T. where the trustee was not accountable to some third party's judgment, i.e. some international body after the manner of the Permanent Mandates Commission. As confidence in victory deepened towards the later stages of the war, the opinion in Britain strengthened that no form of international intervention in the administration of the colonies could be tolerated, and indeed some hoped it would be possible to abolish the mandates altogether rather than subject all colonies to a mandatory regime.

The San Francisco decisions of 1945 (see SAN FRANCISCO CONFERENCE) respecting colonies were a compromise between the more extreme points of view. The conference drew a clear line between the treatment of the colonies proper and of those areas which were held under mandate or which might at any time be brought under a similar regime. The conference (see UNITED NATIONS CHARTER) did not propose to subject colonies to any system of control—probably it bore in mind Mr. Churchill's famous declaration that what Britain had it held, and that he did not think he had been called upon to be Prime Minister

in order to preside over the liquidation of the empire. The United Nations Charter restricted itself to an agreed declaration on colonial policy, which recognises that the interests of the colonial peoples are paramount and commits the colonial powers to promote self-gov. 'according to the circumstances of each ter. and its peoples and their varying stages of advancement'—a declaration which contains nothing new to Brit. colonial policy and which indeed would seem almost to be modelled upon that policy, especially as the charter concedes the principle that progress in free institutions must evolve in harmony with social and economic advance. The charter does, however, require that colonial powers should regularly transmit to the United Nations Organisation statistical and other information regarding colonial conditions. The element of third-party control is, in fact, limited to that class of ters. which are to be brought under the international trusteeship system: i.e. ters. then held under mandate; those which might be taken from enemy states after the war; and those which might be voluntarily put under the system by the states then controlling them. Assuming that Britain would decline to offer any part of her colonial empire for inclusion in this system, the areas which would come under it would in terms of pop. be under one-tenth of the whole Brit. colonial empire.

The international trusteeship system, however, differs in many particulars from the mandatory regime. The Trusteeship Council, which replaces the Permanent Mandates Commission, is composed of member states administering trust ters., major signatories not holding such ters. (at that date these were U.S.A., U.S.S.R. and China), and such number of elected member nations as would ensure that trust-administering nations were not in the majority. Each member nation nominates one qualified person to be its representative; whereas in the old mandatory system, there was no rule prescribing the countries which should nominate members, and it was a recognised convention that the commission's members should be regarded as individuals exercising an independent judgment, not as national representatives.

The council's stated functions as to receiving petitions and information are not wider than those of the old commission, save that the council has formal authority to provide for periodic visits to the trust ters. But there is a change in the way in which ters. may be brought under the new system: each is to be the subject of a separate agreement, which is to be made by 'the states directly concerned,' including a mandatory power, and approved by the United Nations. The object of this arrangement is to secure flexibility in the terms of the trusts over ex-enemy ters., but may cause difficulties in securing agreements between a mandatory and the 'states directly concerned,' whose identity is obscure. These agreements, however, are to be made

within the framework of the declared objectives of the trust system, which indeed are similar to those of the colonial charter or declaration. But two points of practical significance arise in relation to certain limitations on the old mandates, viz. the prescription of the obligatory open door in A and B mandates—applicable to tariffs, investment of private capital and immigration—and the prohibition against raising forces locally or constructing fortifications or bases except for purely local defence. The trust system maintains the open-door principle, though it does so in such terms as imply a possible departure in the interests of the people of the ter.; but the restriction on fortification is discarded. Despite all that the charter may be designed to achieve, it is probable that experience will show that, as in the past, the sure guarantee of the interests of the peoples of mandated ters. lies in the character and conscience of the administering authority' (Lord Hailey, in *The Times*, Oct. 3, 1945).

Colonies, Zoological, are formed when a low organism gives rise to sev. buds which adhere to the parent and continue to reproduce after this manner. Such colonies, occasionally found among the Protozoa, are very usual among the Porifera or sponges, and among the Coelenterata the fresh-water *Hydra* forms such an aggregate of individuals temporarily, while many other forms, e.g. dead men's fingers, or *Alcyonium digitatum*, and most corals, are permanently colonial. In many cases the individuals which make up a colony perform identical functions, but in the condition known as polymorphism the functions are specialised and allotted to various persons. Thus the individuality of the members is frequently lost, and they become almost like organs instead of whole living creatures.

Colonies, Epileptic, see under EPILEPSY. **Colonna** is the name of one of the oldest and most illustrious families of Italy, which has produced popes, cardinals, princes, and generals, and belonged to the Ghibelline party.

Colonna, Cape, see COLONNES.

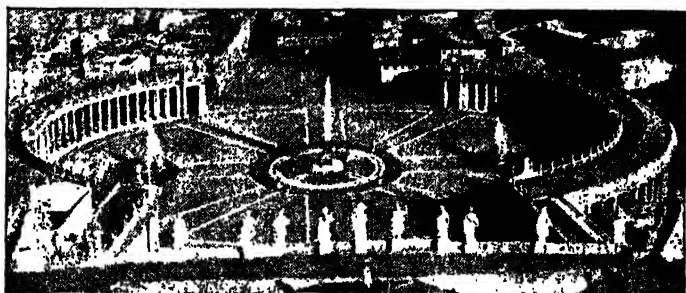
Colonna, Fra Francesco, Dominican, b. at Venice. He is famous chiefly as the writer of a mysterious allegorical romance, *Hyperboreanus Poliphili, ubi humana omnia non nisi somnium esse docet*, which would probably be forgotten but for a rare ed. with engravings by Giovanni Bellini and for Paul de Saint Victor's illustrations. An abbreviated version of this romance was pub. by Sir Richard Dallington in 1592 under the title of *The Strife of Love in a Dream*. See also Linda Elzer-David, *Der Liebestraum des Poliphilo: ein Beitrag zur Psychologie der Renaissance und der Moderne* (Zürich), 1948.

Colonna, Giovanni Paolo (1640–95), It. composer, b. at Bologna. He composed mostly church music. On four occasions he was elected principal of the school of music at Bologna. Some of his compositions are still in MS. at Bologna and some at Vienna, but a fair number of them were printed in 1681–94.

Colonna, Pompeo (1479-1532). It. cardinal, nephew of Prospero C., It. condottiere. After having been a soldier in his youth, Pompeo C. entered the Church, and was made bishop of Rieti in 1508. For inciting the people to revolt against Pope Julius II. he was deprived of his office, but was pardoned by Pope Leo X., and created cardinal in 1517. He held the office of viceroys of Naples from Charles V. from 1529 until his death. He had some talent as a poet; his celebration of the famous It. poetess, Vittoria C., entitled *De Laudibus Mulierum*, is his prin. work.

Colonnade, one or more ranges of columns symmetrically disposed, in front of, or surrounding a building either outside or inside.

Colonne, Guido delle, Giles, or Gilles de Colonne, Egidio Colonna, or Egidius Romanus (d. 1316). It. theologian and writer, b. at Rome. He became tutor to the dauphin of France, Philippe le Bel, for whose use he wrote a treatise entitled *De Regimine Principum* (pub. in folio at Rome in 1492). In 1292 he was elected general of the Augustinian order, and later became bishop of Bourges. He was an exceedingly learned man, and was called



THE COLONNADE, ST. PETER'S, ROME

D. McLeish

Colonna, Prospero (1152-1523). It. condottiere who offered to help Charles VIII. of France when that king invaded Italy in 1494-95. He was an extremely able general, and later on entered the service of the pope, and among his many victories he won the battle of Vienna in 1513 against the Venetians, and the battle of Bicocca in 1522 against the Franco-Ger. forces under Lautrec. Sismondi gives a good account of this man in his *Histoire des républiques italiennes au moyen âge*, an extract of which came out in Eng. in 1830.

Colonna, Vittoria (1190-1517), marchioness of Pescara. Italy's most celebrated poetess, daughter of Fabrizio C. She was betrothed at the age of four to Francesco de Avalos and was brought up in the mansion of Costanza d'Avalos, Francesco's aunt, where Tasso and most of the intellectual men of the time were constant guests. She was remarkably beautiful, very intellectual, and well educated; her first poetry was written at an early age. From 1512 she led a very lonely life, her husband being absent with the fighting army; he is the one subject of her verse during this time. After his death she lived in retirement for ten years. Later she lived for four years in a monastery at Orvieto, then in a convent at Viterbo. Michelangelo, between whom, in his later years, and Vittoria C. existed a warm friendship, wrote some of his finest sonnets to her. The *Rime spirituali* are her most characteristic poems.

by his contemporaries 'the well-founded doctor.' He wrote sev. books on philosophy and divinity. A life of him by Angelo Rocca is prefixed to an ed. of his work, *Defensorium*, pub. at Naples in 1644.

Colonnas (Colonna), Cape (It. 'column'; formerly *Sunium Promontorium*), also called *Sunion* or *Kolonos*, is a southern point of Attica, Greece. At the cape's extremity are ruins of a temple (269 ft. above sea level) dedicated to Athene, of which thirteen marble columns still stand, and from these the tn. derives its name.

Colonsay and Oronsay, two Inner Hebridean is., off Argyllshire, Scotland. C. measures 8 m. by 3 m., and possesses a college, which was founded by St. Columba. St. Columba landed at O. from Ireland in 563 and afterwards removed to Iona. There are extensive remains of a priory founded in the fourteenth century. Pop. 300.

Colonus, or Kolonos Hippios, site in Attica, Greece, about 2 m. N.W. of Athens. Sophocles was born there, and immortalised it by the description which he gave of it in the *Edipus at Colonus*. Two most famous archaeologists, Charles Lenormant and Otfried Müller, are buried in the cemetery upon the hill-top.

Colony (Lat. *colonia*, from *colere*, to till), name applied to a country which is peopled by immigrants, who remain subject to or connected with their parent state. The anc. Gks. colonised extensively along the coast of Asia Minor,

Thrace, S. Italy, N. Africa, Sicily and the Crimea, a Gk. C. was called *πατρίδα*, and the colonists *πατρίοι*, i.e., literally, 'people from home.' The cause of emigration from Athens was usually political dissension. The band consulted the oracle and chose a leader, called *οἰκιστής*, who took sacred fire from the Prytaneum, that the new city might be patterned after the *μητρόπολις*. The city thus founded was entirely self-governing and independent, and was connected with Athens only by ties of sentiment and religion. The *κλήροι*, i.e., literally 'allotment,' on the other hand, though it had a certain amount of internal self-gov., remained in close connection with the mother city, the citizens being recognised as Athenian citizens. The Phoenicians and Carthaginians were great seafarers, but their purpose was purely a commercial one, and they aimed at building trading centres, rather than at establishing Cs. The Romans, who were a great colonising race (strictly speaking a *colonia* is a farm, or cultivated land, but the meaning was extended to embrace any public settlement of Rom. citizens, and later it acquired a military sense), began their Cs. in the neighbouring cities. Whenever Rome conquered or acquired new ter., she left behind her a handful of citizens to act as a garrison. These citizens were frequently veteran soldiers. They were given the land as a reward for past services, and had to answer to Rome for the loyalty and good behaviour of the *colonia*. The Romans had a genius for organisation and administration. Some Cs. were rewarded with the high privilege of Rom. citizenship, while others remained in the humbler position of dependencies, and still others grew into large Rom. provs. The gov. was modelled on the republican gov. of Rome, and the Cs. were governed by the same kind of officials. The highest men in the state were rewarded with the governorship of a prov. or C. After the fall of Rome, Cs. were not heard of again till early in the sixteenth century, when Spain and Portugal took the lead, followed closely by England, Holland, and France. During the Renaissance men were inspired by a high, adventurous spirit. Those who came back across the Atlantic filled the minds of their fellow countrymen with stories of a wonderful land, where unlimited gold might be found. The possibilities of the New World seemed to be unlimited, and every country which had any maritime power wished to be there first and possess the best of everything. Portugal had, as early as the fifteenth century, placed trading factories along the W. coast of Africa, which she later extended as far as India. Portugal now developed her empire in S. America, as well as in Africa, her great rival in the former country being Spain. The Cs. of Spain and Portugal were directly subject to the gov. at home; they were ruled by highly paid, self-seeking officials, whose one ambition was to make so much out of the new country that they might return, enriched with their gains, to their

former home. The Sp. colonists were chiefly engaged in mining. The Portuguese aimed at placing factories at convenient ports for trading purposes. Neither country aimed at cultivating the land it had seized, and neither was successful at ruling the natives nor at settling down and making a home in the new conditions. By the end of the eighteenth century Portugal had lost everything except a few tus. of little note in India, a strip along the coast of Africa, and Brazil, which later asserted its dependence and became a republic (1822). Spain eventually lost her possessions in S. and Central America during the nineteenth century, and her other Cs. she ceded to the U.S.A. after the war of 1898-99. The earliest Brit. C. was Newfoundland, annexed by Sir Humphrey Gilbert in 1583. During the sixteenth and seventeenth centuries Great Britain was, of course, urged to send her sons across the seas by a spirit of rivalry with other European states. But other causes made it imperative that they should find a permanent home in the New World. Religious differences at home was one of these causes, and led to the sailing of the *Mayflower* from Plymouth to New England in 1620. The settlers in N. America were organised as chartered companies, with royal letters patent. They remained under the supervision of the gov. at home, but developed according to their own needs. They traded almost entirely with Great Britain, to whom they sent raw materials, receiving in return manufactured products. The Brit. empire in India, which was not technically a C., having a secretary of state of its own, began through the commercial industry of the E. India Company, which was incorporated in 1600. The new possessions which accrued to Great Britain during the eighteenth century were, chiefly, trophies of war. Gibraltar, the gate to the Mediterranean, and as such of invaluable importance to a maritime country, was captured in 1704. Through the victories of Clive and Wolfe, before the end of the century Great Britain reigned supreme over India and Canada, which did much to compensate for the loss of the U.S.A. The nineteenth century was a period of development and consolidation. Australia, first used as a dumping-ground for convicts, had grown greatly in prosperity, and its different provs. were united into an autonomous commonwealth in 1901. After the rebellion of 1837-38, responsible self-gov. was given to the Cs. of Brit. N. America, the last to receive it being Brit. Columbia in 1863. In Africa, after the Transvaal war (1899-1902), the Cs. in the S. were united under the name of the Union of S. Africa, with a representative gov. of its own. Other Brit. Cs. which have (or have had) self-gov. are New Zealand and Newfoundland. Newfoundland's administration was vested in 1934 in a Commission of Gov. under the supervisory control of the Imperial gov., but in 1949 the Is. joined the Canadian Confederation. (See further NEWFOUNDLAND.) It is to be observed that in

official language the term colony no longer applies to Australia, Canada, New Zealand, S. Africa, and Ceylon, which are styled dominions (see DOMINION STATUS). (The Statute of Westminster, 1931, provides that the expression 'colony' shall not, in any Act of the United Kingdom Parliament passed after 1931, include a dominion or any prov. or state of a dominion.) The Brit. Parliament has no veto over the legislation made in the dominions or with self-governing Cs. such as S. Rhodesia, but the Crown appoints the governor, who is responsible to the imperial gov. A dominion gov. may make recommendations as to the appointment of a governor-general, as was done in the case of Sir Isaac Isaacs, who was made governor-general of Australia in 1931, and a few years later, in the case of Sir Patrick Duncan, the governor-general of the Union of South Africa and his successor Maj. G. B. van Zyl. Certain other Cs., such as Barbados, have representative institutions, but the Crown has the right of election to all public offices. Crown Cs., such as K. C. Trin., Gibraltar, are under the legislative control of the home gov. Modifications of this control are continually being made in order to give the people of the colonies a much greater part in the control of their affairs. Thus, in 1949, a new constitution for Trin. provided for nine additional elected members of the Legislative Council and a clear majority of elected members in the Executive Council. In most cases, however, reserve legislative powers are vested in the governor, to be used only when a question of public order or good gov. is involved. (See also COLONIAL LAW.) On emigration see EMIGRATION; EMPIRE SETTLEMENT ACT. The dominions and Cs. of Great Britain have loyally supported the mother country in time of war and have also generously contributed towards her navy. For detailed accounts of the hist. of Cs. see articles on the chief countries, Great Britain, Spain, etc.; see also the articles on the various dominions or Cs. See also bibliographies for BRITISH EMPIRE or BRITISH COMMONWEALTH OF NATIONS; COLONIAL DEVELOPMENT AND WELFARE. Consult H. Brougham, *An Inquiry into the Colonial Policy of the European Powers*, 1803; A. H. L. Heeren, *Manual of the Political System of Europe and its Colonies*, 2 vols., Eng. trans. 1834; J. A. Doyle, *The American Colonies previous to the Declaration of Independence*, 1869; E. J. Payne, *History of the European Colonies*, 1877; P. P. Leroy-Beaulieu, *Colonisation chez les peuples modernes*, 1891; P. Gaffarel, *Les Colonies françaises*, 1893; W. B. Worsfold, *South Africa*, 1895; Zimmermann, *Die Europäischen Kolonien*, 1896-1901; Sir C. Dilke, *The British Empire*, 1899; A. Ireland, *Tropical Colonisation*, 1900; F. Dodd, *A Short History of the English Colonies*, 1901; R. Jebb, *Studies in Colonial Nationalism*, 1905; A. B. Keith, *Responsible Government in the Dominions*, 1909 (rewritten 1927); and *Imperial Unity and the Dominions*, 1916; G. L. Beer, *The Old Colonial System*,

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Colophon, final paragraph found in some MSS. and in printed books before the introduction of title-pages, giving the name of the author, the date and place of production, and the name of the copyist or printer, pious remarks being frequently added in the case of old MSS.

Colophon, anct. Ionian city in Asia Minor, near the coast, between Lebedus and Ephesus. The bp. of the poet Mannermus.

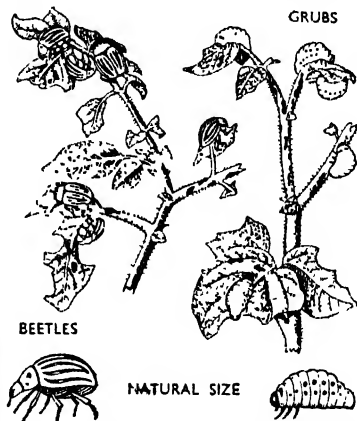
Colophony, or **Common Resin**, or **Rosin**, exudes from certain species of pine in a semi-liquid state. This is the crude article, and consists of the resin proper and turpentine. On distillation the turpentine is obtained and the resin left behind. This is a brittle, solid, and semi-transparent substance, varying from pale yellow to dark brown in colour. It is insoluble in water, but dissolves in alcohol, chloroform, etc. It burns with a smoky flame and melts easily, decomposing if heated much, giving resinoid as a chief product. It is used extensively in yellow soap manuf., the sizing of paper, and as a protective in soldering.

Colorado, one of the States in the Mt. Div. of the U.S.A. It is bounded on the N. by Wyoming and Nebraska, on the E. by Nebraska and Kansas, on the S. by Oklahoma and New Mexico, on the W. by Utah; its lat. is 37-41° N. and its long. 102-109° W., its area 104,207 sq. m., and its pop. in 1940 was 1,123,296. The Indian pop. is 1360. C. is crossed from N. to S. by ranges of the Rocky Mts., having close upon fifty peaks upwards of 14,000 ft. in altitude; Elbert, the highest, is 14,420 ft.; the next highest, Blanca, being 14,363 ft., and at least 300 peaks are estimated to exceed 13,000 ft. Six of the many passes which cross the ranges are at an altitude of upwards of 12,000 ft.; the Argentine Pass is at a point 13,000 ft. high. Railways cross many of the passes, traversing valleys and canyons in their course and presenting examples of great engineering skill. The Denver and Rio Grande W. railway crosses Marshall Pass at 10,856 ft., and in 1928 the Moffat Tunnel, 32,150 ft. long, was opened under

James Peak. In the central mt. region are the marvellous *parks* or rich mt. valleys, canyons, and hot springs which have so often been described. The E. rive. of the state belong to the Mississippi valley, the W. to the C. R. Of the former the most important are the S. Platte, the Arkansas, and the Rio Grande del Norte, draining the Atlantic slope; while to the latter belong the Bear and the Gunnison or Grand rivs., which drain the Pacific slope. The climate of C. is very salubrious and regular; its atmosphere is remarkably dry, rendering sojourn there most beneficial to consumptives and asthmatics. Its many medicinal (chalybeate, sulphur, and soda) and thermal springs, too, contribute to make the state a very valuable health resort. Agriculture is the prin. industry; mining and cattle raising coming next in order. Until 1910 C. was the leading state for the production of gold, then, however, it was outstripped by California; Montana, Utah, and Nevada alone surpassed it in output of silver. Coal also is produced in large quantities, the state being eighth among all the coal-producing states and first among those W. of the Mississippi. C. coal has been in very great demand for many years for the railways between C. and the Mississippi; its 'coking coal' has become important in the manuf. of steel and iron. The ann. output of coal is 6,000,000 tons; zinc 30,000 tons; lead 15,000; and copper 1350. Other minerals are manganese, radium, molybdenum, and tungsten. The production of petroleum is nearly 12,000,000 barrels a year. The development of irrigation has made agriculture prosperous. Wheat, oats, maize, barley, hay, potatoes, and beet-sugar are the staple agric. productions. The locust and the C. potato-beetle have hitherto been very inimical to the labours of the agriculturist, but headway is being made against these pests. Stock-raising is mostly confined to sheep and cattle, and the export of dead meat is an important industry. Part of C. was acquired by the U.S.A. from France in 1804 and part from Mexico in 1848. In 1858 the discovery of gold brought settlements of Eng.-speaking people to the dist.; these pioneers came from Kansas, Nebraska, and Missouri. Immigration went on in a continuous stream during 1860-62, when it was checked for some years by the warlike attitude of the native Indians, to be resumed again in 1865. C. was admitted as a state in 1876. The pop. is of mixed origin, but is largely made up of immigrants from the older Amer. states; there is a small Sp.-speaking colony in the S. The chief tns. are Denver, state cap., pop. 322,000, Pueblo, 52,000; C. Springs, 36,000.

Colorado Beetle, or Potato Beetle, N. Amer. member of the family Chrysomelidae. The chief characteristics of the beetle are the longitudinal stripes of black and yellow, i.e. stripes running from the front to the tail and *not* across the insect. The bright pink or red colour of the grubs will serve to identify them, provided

they are found eating potato leaves, since there is no similar insect in this country that feeds on potato leaves. A further characteristic sign of both beetles and grubs is the black and rather messy excrement (frass) which is left on the potato leaves. The C. B. spends the winter buried deeply in the soil—10-12 in. in average soils. In late spring or early summer it works its way to the surface and flies in search of potato crops, travelling distances of sev. miles if necessary. On reaching a crop the beetles feed upon the potato leaves, and the females lay clusters of eggs on the leaves, the majority



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COLORADO BEETLE AND GRUB

being attached to the under-side. In a few days the eggs hatch into grubs, which also feed upon the potato leaves. After about three weeks the grubs are fully grown, and descend into the soil, where they turn into pupae. Ten to fifteen days later they undergo a further and final change into adult beetles. Towards the end of July and during Aug., these beetles come up to the surface, feed, and if the weather is warm, lay eggs that produce a further generation of beetles before the haulm dies off in the autumn. With the end of summer the beetles burrow down into the soil again, and stay there for the winter. The effect upon the potato crop depends upon the number of beetles and grubs present. When there are many, the haulm is completely stripped of leaves, and no tubers worth digging are formed. It is by the destruction of the haulm that the pests do damage; they do not burrow into the tubers themselves. The C. B. is notable for its ability to adapt itself to different climatic conditions, and for the way in which it can spread rapidly, both by flight and by making use of trains,

boats, or other forms of transport. These two characteristics explain how it is that an insect formerly restricted to a semi-desert region of the W. U.S.A. has already occupied most of the N. Amer. continent, and has now colonised many European countries, including France, Belgium, Holland, Germany, and Switzerland. Since 1933 there has been a number of outbreaks in England, but by the exercise of drastic measures the pest has so far been prevented from establishing itself. The kinds of insect most frequently confused with the C. B. are the useful ladybird beetles (marked with black spots on an orange or red ground colour), and their grubs and pupæ; the burying or sexton beetles (much larger than the C. B., and marked on the back with orange-red and black bands from side to side); and the cockchafer (*g.v.*) (yellowish-buff in colour).

Colorado Desert, immense desert in the S. of California, U.S.A., situated to the W. of the Colorado R. It contains the Coachulla valley, the lowest part of which once formed the San Felipe Sink, about lake of 8000 sq. m. in the Coachulla valley. This to some extent dried up afterwards. 300 ft. below the level of the sea. In 1891 the flooding of the R. Colorado formed a

Colorado River, large and remarkable riv. of S.W. U.S.A. It is formed by the union of the Green R., which rises in Wyoming, and the Grand R., which rises in Colorado, where it is known as the Gunnison. Before its junction with the Grand R., the Green R. receives the Yampuh and the White R., and then flows for 150 m. without any further important augmentation; the Grand R., which drains a large portion of Colorado, receives the Bunkara and the Dolores. The united stream flows through Utah, receiving there the San Juan, and then passing through Arizona it is joined by the Colorado Chiquito, or Little Colorado, the Bill Williams, and the Rio Gila, all from the left. From a generally southerly direction the riv. turns due W. to cut through the mt. ranges, then again due S., entering the gulf of California after a course of about 2000 m. The C. R. is unique in the world by reason of the wonderful channel it has carved out for itself. It flows for miles at a time at the bottom of a deep trench or canyon, which it has cut out through stratum upon stratum of rock. The walls of these canyons are often from 4000 to 7000 ft. high, sometimes rising sheer from the stream; sometimes there has been a fall of rock which breaks up the perpendicularity, and which now and then gives rise to a strip of fertile ground. The most remarkable of these ravines is the Grand Canyon, which is the most extensive not only of the Colorado canyons but of any in the world. This occurs after the junction of the Colorado Chiquito with the main stream. The riv. makes its way for about 200 m. through a great plateau, and the Grand Canyon is the result. Further down is the Black Canyon, whose height is about 1000-1500 ft., and whose length is 25 m. In this dist. are to be found numbers of

abandoned prehistoric dwellings, some on cliffs in the canyons, others on high ridges. This seems to indicate that at some distant time it was more adapted for the support of human life than it is now. Navigation of the C. R. is possible only for about 600 m. Tortoises abound at the mouth of the riv. in April and Aug.

Colorado River, Texas, U.S.A.; rises in the table-lands in the N.W. by many heads, the chief being N. Fork and Salt Fork; flows S.E. for about 650 m., entering the bay of Matagorda just S.W. of Matagorda. Chief tns. on its banks: Austin (state cap., at the head of steamboat navigation), Bastrop, and La Grange.

Colorado Springs, cap. of El Paso co., Colorado, U.S.A., 65 m. S.E. of Denver. It is a favourite summer and health resort, standing in lovely scenery, at an altitude of 6000 ft., and sheltered by mts. on the N. and N.W. The climate is mild, and in the vicinity are the Manitou mineral springs, and the Garden of the Gods, a dist. of red sandstone peaks. There are sawmills and a trade in cattle. Pop. 36,000.

Colorado University, Amer. state institution for the higher education of both sexes, founded in 1876 at Boulder, Colorado, and formally opened in 1877. In 1914-45 there were approximately 5900 students. In addition to the library of over 210,000 vols., there are numerous pamphlets and a large collection of maps.

Colorno, tm. of Parma prov., Emilia, Italy, on R. Parma, 59 m. N.E. of Parma. Pop. 2500 (commune, 7000).

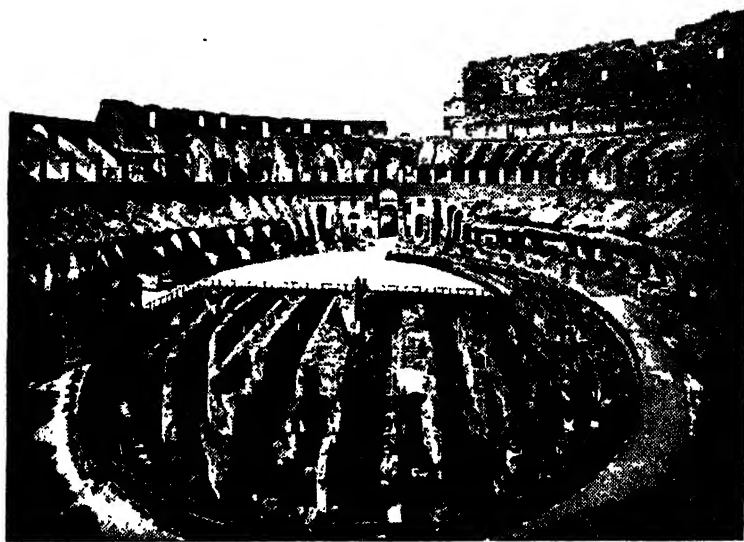
Colossal Cavern, cavern, Kentucky, U.S.A., whose entrance is 14 m. from the Mammoth Cave; its formation is due to the chemical and mechanical action of water; it has a number of domes and pits.

Colosseum, name given to a celebrated amphitheatre in Rome, one of the most important monuments of Rom. antiquity. It was begun by Vespasian, finished in A.D. 80 by Titus, and was known originally as the Flavian amphitheatre, Flavius being the family name of these two emperors. The name C. was first employed by Bede in the eighth century, in reference, no doubt, to its colossal size; it was the colossal building *par excellence*. The C. was used for combats of gladiators and wild beasts; after the shows the arena was often filled with water and used for nautical displays. It is now in ruins—a gigantic stone carcass. Sev. times ravaged by fire and always restored, it served the barbaric pleasures of the Romans until the end of the sixth century. Since then it has suffered pillage at the hands of the barbarians, has been used as a fortress by brigands of noble Rom. family, has been transformed into a huge quarry, marble for the Forum being calcined there in lime-kilns, and its own stones have been carried away for building purposes. Pope Benedict VIII. saved it from further devastation by consecrating it to the memory of the Christian martyrs and by erecting crosses and oratories within its walls. Popes Pius VII., Leo XII., and Pius VIII. further preserved it by buttressing the walls, etc. In form the C. is

an ellipse whose axes measure 615 ft. and 510 ft.; its height is 160 ft. to 180 ft., and the arena about 281 ft. by 177 ft. It is estimated to have held seats for 87,000 persons and standing room for 20,000 more.

Colossians, Epistle to the, epistle addressed by St. Paul to the church at Colossæ. This epistle is generally believed to have been written in Rome about

which was the work of Chares of Lindus, and represented the god Apollo. This figure was about 100 ft. high, took twelve years to erect (292 to 280 B.C.), and cost 300 talents, which is about £70,000. The statue was placed at the entrance to the harbour, but not with a leg on each side as often stated. In 224 B.C. an earthquake cast it to the ground, where it remained until A.D. 672, when Moawiya,



Anderson

THE COLOSSEUM, ROME

A.D. 62, on the occasion of the springing up in the church at Colossæ of a Judeo-Gnostic heresy. The chief features of this heresy—probably Essenism—are angel-worship and asceticism. The Colossian church was mainly Gentile, and this doctrine was taught by converts from Judaism, who tried to impose its ceremonial observance upon their Gentile brethren. Epaphras, the founder of the church at Colossæ, informed St. Paul of this state of things, and in reply the apostle wrote the epistle. In it he combats this invading 'philosophy' and earnestly contends for the supreme dignity of Christ. The epistle was dispatched by the hands of Tychicus, who also bore the epistle to the Ephesians at the same time.

Colossus, word originally used by the Greeks, and afterwards adopted by the Romans, to designate statues that were more than life size, and particularly those of gigantic proportions. The name was especially used to signify the celebrated enormous statue known as C. of Rhodes,

a general of Caliph Othman IV., sold it to a Jew of Edessa who took it away in pieces on 900 camels.

Colotomy, that operation which involves opening into the colon; it is usually performed in cases of stricture.

Colour, sensation excited by the action of rays of light on the retina of the eye. Light is transmitted by a wave motion of the all-pervading ether of space, and its properties depend upon the wave-length of the waves. Of the whole group of radiations of the same nature, ranging from long wireless waves on the one hand penetrating short wave to X-rays and gamma-rays on the other, the eye is sensitive to only a narrow band of wave-lengths. In this band the longest waves excite the sensation of red and the shortest that of violet. Ordinary white light from the sun or from an incandescent solid or liquid can be resolved into its components to form a spectrum in which the radiations of each particular wave-length are concentrated at one point. In this way it is shown that the radiation that excites in

the eye the sensation of white consists of a mixture of radiations which separately produce sensations of C. Seven different Cs. (red, orange, yellow, green, blue, indigo, and violet) are conventionally distinguished in the spectrum, but as each shades off gradually into its neighbours there is no sharp demarcation between them, and most observers find difficulty in accepting all these Cs. as distinct, preferring to regard the blue, indigo, and violet, for example, as shades rather than as separate Cs. Certain Cs. such as brown and purple are not found in the spectrum, and are not induced as sensations when light of any one wave-length falls on the eye.

Although ordinary white light consists of a mixture of all the spectral Cs., the sensation of white can also be produced by other mixtures such as that of blue and yellow lights of appropriate intensities, or by red, blue, and green. This fact may be used in the production of white light by electric discharge lamps, the light from which appears to the eye to be indistinguishable from ordinary white light, although the intensities of the various Cs. present are not necessarily the same in the two cases. In the same way lights of such wave-lengths as separately produce the sensations of pure spectral Cs. may give, when mixed, a sensation indistinguishable from that of another spectrum C., or of a C. not found in the spectrum. A mixture of green and red lights, for example, produces the sensation of yellow. The Cs. of non-luminescent objects therefore depend upon the nature of the light falling on them, upon their action on this light, and upon the reaction of the eye to the light transmitted to it from the objects. With few exceptions the action of a coloured object upon the light falling on it is merely one of subtraction of one or more spectral Cs. Thus when white light falls on a red glass the glass appears red when viewed by transmitted light, because the light passing through it is such as produces in the eye the sensation of red. This light may be either radiation of a narrow band of wave-lengths at the red end of the spectrum, or a wider band in which red is the predominant C., because the red light is of a higher intensity than the orange and yellow. Similarly a blue glass appears blue because it absorbs all the rays except those at the blue end of the spectrum, while if the red and blue glasses are superimposed any radiation transmitted by the one is absorbed by the other, with the result that the combination looks black. Opaque objects act in a similar way. The light reflected to the eye penetrates the surface of the object for a short distance while undergoing reflection, and in doing so some of its Cs. may be absorbed. If there is no preferential absorption the object appears white when viewed in white light, and when viewed in coloured light appears to be the C. of the light. A blue object on the other hand appears blue in white light because it absorbs light of the red end of the spectrum, and reflects only

that from the blue end. If viewed in blue light the light is reflected and the object still appears blue, but if only yellow light falls on it none is reflected, and it appears black. Most blue objects, however, reflect appreciable amounts of green light as well as blue, and therefore appear green in a pure green light. When two pigments are mixed both may continue to absorb the same Cs. as before. Thus when white light falls on a mixture of blue and yellow pigments the blue particles absorb all but the blue and green light, and the yellow all but the red, orange, and yellow. The only light not absorbed by either is therefore green, so this is the C. seen by the eye.

C. has three varying properties: it may be said to possess *hue*, *purity*, and *luminosity*. Its hue or tint gives it its name, as, for example, ultramarine and indigo blues. The purity or richness of a C. is determined by the amount of white light which is diluting the tint, and according to its purity we talk of the paleness or deepness of a given C. Again the luminosity determines the shade of a C. and gives it its quality of darkness or brightness. Various theories as to the mode of C. perception have been put forward, but all meet with difficulties. Young and Helmholtz believed that the retina consists of three kinds of nervous elements. Each of these is excited by only one C., and it is supposed that there are three physiologically primary Cs. Opinions differ as to what these Cs. are, but we may take them as being red, green, and violet. According to this theory, if the elements sensitive to all three Cs. be simultaneously excited, according to the proportion of excitation of each set of elements, then the resultant impression may be either a simple C. or white. Similarly, simultaneous excitation of the elements sensitive to green and violet would result in some C. in the spectrum, ranging between green and violet, according to the proportion of the excitation of the two elements. This theory will account for the appearance of consecutive coloured images. For example, if a red object be viewed for a long while, the eye becomes fatigued to red, and in darkness an image composed of green and violet will result in an after image of a pale greenish-blue hue. Viewing an object in white light with the eye fatigued to red, then, causes one to see an intense complementary image coloured by a blend of green and violet. See also INTERFERENCE; LIGHT; SPECTRUM; VISION; DEFECTS OF. See A. H. Church, *Colour*, 1901; W. de W. Abney, *Researches in Colour-vision*, 1913; E. R. Watson, *Colour in Relation to Chemical Constitution*, 1918; W. H. Bragg, *Universe of Light*, 1933.

Colour, Accidental, see ACCIDENTAL COLOUR.

Colour Bar, phrase which connotes differential or discriminatory legislation or regulations by colony-owning powers against coloured races, and in this, its technical sense, it is of very recent origin. The first legal definition in the Union of S. Africa, where it is most in evidence, is

to be found in a series of Acts begun in 1912, which culminated in 1926 in the passing of the Mines and Works Amendment Act, empowering the gov. to make regulations discriminating against the Bantu solely on the ground of their race and colour. The origin of C. B., of course, goes back centuries, or, in its wider implications, it may be regarded as merely a corollary to slavery. It was but natural that the white man's more efficient technical equipment and more advanced intellectual achievements should tend to make him contemptuous of native, and especially African native, manners and customs and culture generally. This 'superiority' attitude towards the coloured races does not, however, explain the present-day discriminatory legislation, which is motivated by the white man's determination to retain his privileged position, whether in administration, land tenure, or commerce, in those colonial dependencies where it operates. In this article, therefore, the term C. B. will be used in this technically accurate and factual sense as defined above, rather than in the vague sense of the various forms of discrimination, social, religious, economic, and educational, official and unofficial, which are believed by some to characterise the general relationship between the white man and the coloured; or in that of the moral justification for the white man's repression or domination of the coloured races, whether in fear that his supremacy is likely to be prejudiced by the advance of the native or in the real interests of the natives themselves, threatened by the industrial development of the colonies and by urbanisation with all its attendant evils of de-tribalisation.

Discriminatory or differential laws and regulations are mainly found in Africa—in the Union of S. Africa, S. Rhodesia, and to a limited extent in the Brit. dependencies in E. Africa—and in the S. states of the U.S.A. In the Brit. W. Indies or other parts of the world under Brit. dominion the C. B. is almost non-existent. To a much smaller extent W. Africa, not being suitable for white settlement, also is markedly free from colour restrictions, especially as there exists a large independent pop. of peasant proprietors. C. B. may be said to be non-existent in the Fr., Belgian, and Portuguese African and other dependencies; but this would not be true of the Dutch colonies, especially the Dutch E. Indies where (before the Second World War) there was a strong Nationalist movement founded largely on the disparity, social and economic, between the Dutch or other Europeans there and the natives. In the Asiatic dependencies of other European powers the C. B. question does not arise, though in S. Africa and Kenya there are discriminatory laws against the large Indian immigrant pop. in those two ters. The C. B. legislation in the Union of S. Africa, begun in 1912, had an important psychological effect as it, morally speaking, justified all the unwritten C. Bs. which had developed in the previous century or

more in that country, so that the force of official example soon spread to other spheres than the mines, spheres where previously it had been unofficial practice. It became a process which soon excluded natives from employment on the railways and other forms of gov. employment and led finally to the abolition of the Cape native franchise which began in Cape Colony in 1853 and ended in 1936.

The C. B. in S. Africa had its foundation in the clause of the original constitution of the Transvaal: 'There shall be no equality between black and white, either in Church or State,' the very antithesis of the political ideal implicit in Cecil Rhodes's phrase: 'Equal rights for all civilised men south of the Zambesi.' In 1912 a political philosophy, based on the segregation of natives and Europeans, was put forward by the S. African Labour party, a policy which assured the permanent maintenance of the white community in a position of political and economic supremacy and the preservation of the standards of European civilisation by reducing the contacts of the two races to the minimum which the economic system necessitates. Gen. Hertzog (q.v.) came into office on this programme in 1924, and developed it to the full. But this C. B. policy only works effectively where there are big industries or mines, especially where white labour is organised. The number of natives residing in urban areas is rigorously controlled and their locations kept separate from the European residential area. It is, at the same time, assumed in S. Africa, as in S. Rhodesia, which has adopted the same principles, that within the sphere of the native reserves the professions and skilled trades shall be fully open to Africans. Union policy has strongly influenced not only S. Rhodesia, but also to some extent determined the attitude of European settlers in the highlands of Kenya, and it seems probable that the C. B. may be pressed for in the copper belt of N. Rhodesia as white labour gradually becomes organised under union influence. Most of the Brit. ters. in tropical Africa, however, are climatically unsuitable for white settlement and their development has been characterised by a different philosophy. But local opinion in Kenya has favoured the S. African segregation policy, while public opinion in Britain has taken the view that native interests deserve more explicit consideration. In Fr. colonial ters., C. B., as we have noticed above, does not exist, for economically the aim of the Fr. is that the mother country and the colonies should form a unit—a centralising attitude bound up with the 'assimilationist' theories which had their origin in the egalitarian doctrines of the Fr. Revolution and which remain as the foundation of Fr. colonial philosophy.

Although in S. Africa the operation of the legal C. B. is confined to the mines, the trade union system applies in practice a C. B. discrimination in most of the skilled trades. The state, moreover, supports this, the so-called civilised

labour policy, by legislation designed to prevent natives from entering into the higher grades of skilled employment, and thereby reducing the openings available to European labour and, in this connection, may be mentioned the law embodied in the previously mentioned Mines and Works Amendment Act, 1926, the most conspicuous C. B. measure, and the one that is generally known by the name of the C. B. law. This law authorises gov. to make regulations providing that certificates of competency in certain occupations shall be granted only to Europeans and certain classes of coloured persons; in practice the regulations apply to the grant of certificates of competency for certain operations in mining. The 'civilised labour' policy exists in principle in S. Rhodesia, but in the absence of any large 'poor white' community, and of large industrial organisations, it is less in evidence than in the union; but there is none the less a considerable body of differential legislation, particularly in relation to land apportionment, trade unions, marketing systems, and the regulation of the movements of natives by the 'pass' system. The pass laws appear in their most conspicuous form in S. Africa—there are trek passes to enable a native to leave his reserve, an identification pass to satisfy the police, a travelling pass to buy a ticket, a monthly pass serving as a contract of service, a daily labourer's pass, and sev. other kinds. These passes were originally in the nature of police regulations, but were later utilised to assist in securing a supply of labour, and to prevent desertion and, in their latest stage, while still used to safeguard the labour contract, they have become part of the machinery of the segregation policy, being instrumental in restricting the influx of a native pop. into urb. areas. The pass system also exists in S. Rhodesia and Kenya, but in both cases the regulations are simpler and less exacting. In Kenya the use of pass laws originally arose in the need to check wandering tribesmen and stock thieves, and it was only later that they were used to meet labour difficulties. Despite the C. B. tendencies in imitation of S. Africa, there is no actual C. B. legislation in S. Rhodesia; but the Industrial Council Act and the strength of organised labour in transport and skilled occupations there have been able to prevent the rise of any large class of native skilled workers, occupied in the European economic system. Kenya does not show the same conflict of interests between the European and African as in the industrial development of the Union of S. Africa. Such conflict with European interests as does exist has arisen from the position claimed by Asiatics in the political field and in regard to land settlement; and in the industrial sphere the settler community has supported the tendency of Africans to replace Asiatic skilled labour. These considerations largely explain the nature of the differential laws applicable to natives in Kenya; they deal primarily

with the place of the native in the European farming areas and have only in a small degree been motivated by apprehensions of the result of contact in the industrial and social fields.

Whether there is any biological justification for the assumption of coloured inferiority in intellectual capacity to the white man, or even whether there is any real biological foundation for the concept of 'race,' are questions which are outside the range and purpose of this article. They may be studied in such books as Huxley and Haddon's *We Europeans*; Ruth Benedict's *Race and Racism* (1942); A. C. Haddon's *The Races of Mankind*, or other works written in refutation, not indeed of the C. B., but of the racialist heresies of Gobineau, Lapouge, and others.

Unlike the old Transvaal Constitution (quoted above) the Amer. Declaration of Independence, 1776, proclaimed as a self-evident truth the fact that all men were created equal and endowed by their Creator with certain inalienable rights, including 'liberty.' But evidently the framers of this constitution regarded Negroes as property and therefore incapable of having rights. After the Civil war the whites of the S. feared that if the Negroes had the vote they might outnumber them; hence it was decided that only those who paid a certain sum in taxes could vote, and this is still the law in most of the states where there are large numbers of Negroes—a law which, even though the tax applies to all voters, is essentially discriminatory in view of the poverty of the Negro. But while in the S. the Negroes are made to keep apart from the whites in all public places such as railway stations or public conveyances, and in the N. contact is reduced to a minimum, there exists no actual C. B. legislation and it is difficult to see how, in the light of the constitution, such legislation could be constitutional. There is, however, in view of the strong social taboos founded on an inexorable public opinion, no need for such legislation. It appears that at the outset of the defence programme in the U.S.A. during the Second World War, Negroes (together with Mexicans and Jews) were practically excluded from employment in the aircraft industry, but that in 1941 the situation began to change so that by early 1943 there were three aircraft assembly plants with over 2000 coloured employees and three additional plants with over 1000 Negro workers. The fact that Amer. Negroes were enlisted in large numbers in the Amer. armed forces for service in the Second World War prompts the question whether or no that fact will serve to improve 'the segregated subordinate status they occupied in civilian life (see C. H. Thompson (ed.), *The American Negro in World Wars I. and II.* (Washington), 1943).

There is an extensive literature on the question of racial problems, especially in Africa. Consult J. W. Gregory, *The Menace of Colour*, 1925; R. L. Buell, *The Native Problems in Africa*, 1928; J. H.

Oldham, *White and Black in Africa*, 1930; G. St. J. Ordo Browne, *The African Labourer*, 1933; I. Schapera (ed.), *Western Civilisation and the Natives of South Africa*, 1934; I. L. Evans, *Native Policy in Southern Africa*, 1934; W. G. Pallinger, *Race and Economics in South Africa*, 1934; W. M. Macmillan, *Warning from the West Indies*, 1936, and *Africa Emergent*, 1938; I. D. MacCrone, *Race Attitudes in South Africa*, 1937; M. R. Dilley, *British Policy in Kenya Colony*, 1937; Lord Hailey, *An African Survey*, 1938 (the most reliable authority); D. Westermann, *The African To-day and To-morrow*, 1939; G. L. Steer, *Judgment on German Africa*, 1940; J. Cary, *The Case for African Freedom*, 1941; M. Perham, *Africans and British Rule*, 1941; E. Bigland, *Pattern in Black and White*, 1941; N. Leys, *The Colour Bar in East Africa*, 1941; J. Lewin, *The Colour Bar in the Copper Belt*, 1941; S. Van der Horst, *Native Labour in South Africa*, 1942; E. H. Brookes, *The Colour Problems of South Africa*, 1943; E. Huxley and M. Perham, *Race and Politics in Kenya*, 1944; L. Barnes, *Soviet Light in the Colonies*, 1944; O. Walker, *Kaffirs are Lively*, 1948; National Committee on Segregation in the Nation's Capital, Chicago, *Segregation in Washington*, 1948; Sir A. Bush, *Colour Prejudice*, 1949.

Colour-blindness (Achromatopsia), affection of the eyes which renders them unable to distinguish certain colours or shades of colour; in an extreme form everything appears grey. C. may be either acquired or congenital. More common to the male than the female sex, it is said to be transmitted from grandfather to grandson. Congenital C. is often accompanied by long-sightedness. There are two distinct forms of C.: in the first there is no differentiation of colours whatever; in the second the spectrum is shortened at the red end, so that from a distance red is not easily distinguishable, and red, orange, yellow, and green appear green; violet appears blue; in green-blindness the red, orange, yellow, and green are all yellow, or it may be red. As there are various theories concerning the colour-sense, so there are various theories of causation. The grey cells in the brain and the nerve fibres connecting them with the eye are concerned, as are also the rods and cones of the retina and the visual purple. For true C., no remedy has, up to this time, been discovered. An acute sense of colour distinguishes seven colours in the spectrum, whereas only five or six are visible to the average eye. There are various test-cards used in the Mercantile Marine service and for railways, which show the colours of the spectrum, and candidates for appointment are required to pick out the various colours as they are named. Holmgren's test consists of matching and naming five finely matched shades of each of twelve different coloured wools, which are handed over, well mixed up, to the examinee. The distinguishing feature of the Jap. Ishihara tests (9th ed. 1949; H. K. Lewis, London) is the application of

the peculiarity of red-green-C. which sees blue and yellow more brightly than red and green. The test plates consist of groups of tiny circles in varying colours and intensities of the same colours. Some of these form a numeral which may be read off correctly or incorrectly as it is seen by the person being tested. See also HEREDITY, *Types of Inheritance*.

Colour Photography, see PHOTOGRAPHY.

Colour Printing is of three styles: relief, intaglio, and lithography. Relief is the oldest style, and includes printing from wood blocks, photo-engraved surfaces, and stereotype and electrototype plates. Intaglio work began in the fifteenth century, and includes engraving on copper or steel, etching, mezzotint process, and photogravure. Printing in colour may have been practised even before the time of John Gutenberg of Mainz, the reputed inventor of printing, and some authorities think that the Romans used a process of copying by engraving on ivory and then making tinted reproductions on canvas by means of plates. Even if this is mere speculation, as indeed is the assumption that C. P. was known in the Far E. before the eighteenth century, there is extant a fifth-century work, the 'Gospels of Ulphilas,' now in the Univ. Library, Upsala, the text of which is in gold and silver on vellum of a mauve hue. There are also in the Victoria and Albert Museum some examples of fabrics whose patterns would appear to have been made from wood blocks in the eleventh century; and again, in the fifteenth century a Venetian decree was issued for the protection of the local industry of making coloured playing-cards and pictures of saints. But according to the leading authorities, notably R. M. Burch, C. P. had its origin in attempts to imitate by mechanical means the colour decoration of the MSS. which furnished the text for the earliest printed books (see ILLUMINATION OF MANUSCRIPTS). It is doubtful whether, in the earlier period of C. P., any separate pictures in colours, as distinct from rubricated typography and other coloured type, were produced, one difficulty, however, being to distinguish in the extant MSS. where the printer's work ends and hand-work begins. The chief printers in colour at this period were those of Venice, London, Mainz, Paris, and St. Albans. The sixteenth century, however, saw the rise of the art of printing pictures in colours by the method which is known to this day as *chiaroscuro* (q.v.). Among the earliest printers in *chiaroscuro* were Ugo de Carpi, who is believed by older writers to have been the inventor of the process, and Jost de Necker, an Antwerpian, believed by Bartsch to have invented the process; but there are other names anterior in date to these, including Maïr of Landshtut, a Ger. artist, and Francisco Dentato, a Venetian, who printed in a dark brown colour; but it was also practised by many of the great masters of engraving, painting, and drawing, who were contemporary with the inventor, whoever he was, of the process. These included

Burgkmair, Cranach, Dürer, many of whose drawings, engravings, and woodcuts suggest chiaroscuro work. Colours in chiaroscuro printing were evidently applied by the press at this time, hand-colouring or stencilling being a later process used to supplement the press colouring and chiefly for colouring playing-cards, though to some extent it was used in the sixteenth, seventeenth, and eighteenth centuries for book illustrations. The art of producing prints in the original chiaroscuro style appears to have died out with John Skippe, of Ledbury, about whom little is known beyond the fact that he was educated at Merton College, Oxford. Skippe, who lived in the eighteenth century, used three or four tone blocks, generally browns, ochres, or olive greens in varying shades. With the eighteenth century comes the rise of intaglio-printing processes. Mezzotint engraving was invented by Louis van Siegen, an officer in the service of William VI., landgrave of Hesse, in the seventeenth century, but the printing of mezzotinted plates is a late eighteenth-century art, and, together with it, two other processes—stipple engraving and aquatinting—were invented. The latter are 'grain' processes, i.e. the grain is formed by a series of dots so arranged as to conform to the planes and modelling of the subject (see under ENGRAVING). The first engraver to practise stipple work was Johann Lutma, a seventeenth-century Ger. silversmith, sev. of whose plates are extant. Notable Fr. engravers in stipple were Jean François, of Nancy (b. 1717), Louis Bonnet (b. 1743), and Gilles Demarteau (b. 1722), the two latter being engravers in the crayon style. The first Eng. stipple engraver was Wm. Wynne Ryland (b. 1732), who, after completing his training in Paris, became engraver to King George III. Improvements on the process were made by a London engraver, Robert Laurie (b. 1749), who invented a method of producing copper-plate pictures in colours at one impression, by inking the plate with stump brushes—a combination of mezzotint and stipple designed to produce book illustrations at a low cost. Aquatint, or the latest of the intaglio engraving processes not dependent on photography, is really tone etching, the graving being effected by the use of acid, so that there need be no lines. The authorities ascribe the invention to Jean Baptiste le Prince, a Fr. painter and engraver, who d. in 1781, and give the date of the first adaptation of the aquatint method to C. P. as about 1768. In England the earliest exponent was Paul Sandby (b. 1725), whose work was in monochrome only. Other notable names in the art of aquatinting are P. L. Debn-court, court painter to Louis XVI., whose 'Promenade in the Gallery of the Palais Royal' is famous; J. F. Janinet (b. 1752), a fine draughtsman and designer; and J. T. Prestel (b. 1739), a Ger. artist. Some of the most familiar eighteenth-century Eng. prints in colour are Wheatley's 'Cries of London,' of which modern copies are still produced.

Jap. colour prints, made from wood blocks, were well advanced by the early eighteenth century, the greatest of the earlier exponents being S. Harunobu, who was imitated by Utamaro, the latter's prints initiating the craze for Jap. prints which is not entirely passed even to-day. Hokusai (b. 1760) was the most famous of all Jap. colour-prints artists, his *Manga*, a book depicting Jap. customs, best exemplifying his work in black and red. (See JAPAN, Art.) In the nineteenth century there was a notable revival of the old chiaroscuro process in a new form known as chromo-xylography, and the most famous name in this connection is that of George Baxter (b. 1804), the son of a Lewes typographer, whose process, really only printing in colours from wood blocks, consisted in colouring an impression from an outline or key block, which was either a copper or steel plate, or a litho stone, by successive impressions from colour blocks of wood or metal. He certainly achieved his object, which was to produce ornamental prints in colours which resembled highly coloured painting in water colour or oils, and for some time he held the field alone. Later names in chromo-xylography were those of Charles Knight, the pioneer of cheap illustrated magazine literature, and whose coloured plates for *Old England Worthies* (1847) were well known; George C. Leighton (b. 1826), the printer-publisher of the *Illustrated London News*, in 1884; Henry Vizetelly (b. 1820), who engraved pictorial subjects for popular books; Edmund Evans (b. 1826), the best known of all the wood engravers for colour work except Baxter, whose coloured line engravings, e.g. those after pictures by Kate Greenaway, are remarkable for daintiness, and who will always be remembered as the pioneer in the production of cheap colour-illustrated children's books; Benjamin Fawcett (b. 1808), whose coloured prints in the illustration of the books he pub. on Brit. birds, moths, and butterflies, exemplify his process of fine printing in colours; and the Knoller brothers (b. 1859 and 1861) of Vienna, whose beautiful colour prints soon became familiar in the windows of London art dealers. The nineteenth century also witnessed the introduction of an entirely new colour-printing method, chromo-lithography (for the principle see under LITHOGRAPHY). The application of the principle of lithography to C. P. consists, as in chromo-xylography, in first preparing the design, and determining the number of tints in which it is to be reproduced, and then drawing on a litho stone that portion of which is to be in a particular colour, and so on, with each of the other colours, the print being made up by the successive impressions from all the colour stones. This process is considered to begin with the issue of the *Pactis Monumentum*, a record of the facts of the peace of 1815, by J. A. Barth, of Breslau, produced in 1816. Other notable names in the earlier period of chromo-lithography are those of Engelmann, Hullmandell, Owen Jones,

Michael Hanhart, and Wm. Day. The later stage is chromo-lithography, dating from the middle of the nineteenth century, when lithographic printing machinery was introduced. After this comes the adaptation of photography to chromo-lithography, said to have been suggested by Mr. Burnett, a member of the Edinburgh Photographic Society, in 1857 — called photo-chromo-lithography, and later perfected under the name of photochromy. A 'photochrom' is a colour photograph, the base of which is generally a collotype print, produced direct from the film or through the medium of a transfer on to stone. Modern Fr. chromolithographs are among the best examples of this process, especially those of Pierre Vidal. Modern colour processes in printing are developments of processes for making photography the means of reproducing natural colours as far as this is possible, and the early years of the twentieth century saw many improvements in working the three-colour half-tone process, while in America especially the four-colour process has been developed. Photogravure, a mechanical intaglio process which superseded the hand-engraved copper plate, is now widely used for colour reproductions, especially in popular journals. See also COLLOTYPE; ENGRAVING; LITHOGRAPHY; PHOTOGRVURE; PRINTING; PROCESS WORK. See W. Gamble, *Line Photo-Engraving*, 1909, and *Photography and its Applications*, 1920; V. Preissig, *Zur Technik der Farbigen Radierung u. des Farber Kupferstichs*, 1909; R. M. Burch, *Colour Printing and Colour Printers*, 1910; L. C. Martin, *Colour and Methods of Colour Reproduction*, 1923; E. J. Wall, *The History of Three-Colour Photography*, 1925; H. Curwen, *Processes of Graphic Reproduction*, 1934; T. Griffiths, *Colour Printing*, 1919.

Colour-sergeant (so called because he attended on the colours), was the non-commissioned officer of highest rank in a Brit. infantry company. He wore on his sleeve a badge of crossed colours over the usual sergeant's chevron. He was the channel by which communication was kept up between captain and men. The rank was abolished in 1912.

Colours, Military, flags and standards borne by most infantry regiments and battalions, and sometimes also by other troops. From the very earliest times banners or similar devices have been used by fighting bodies both on land and sea to act as a rallying-point and a signal. From the very fact of this practical value as a rallying-point, the banner or standard began to exercise a moral influence. This is already seen in fully developed form in the days of the Rom. Empire, when the loss of the eagle was the greatest disgrace a legion could sustain. Similarly, the flags of later times became, as it were, an embodiment of the spirit of the regiment, the link binding the soldiers of the time with the veterans of the past. The loss of the standard was the break-up of the regiment. The colours, then, were invariably taken into battle until the last

quarter of the nineteenth century, but now the systems of modern warfare have led to the colours being left at home by Brit. regiments. According to the present arrangement, dating from the time of Queen Anne, each Brit. regiment or battalion has two colours, the king's colour and the regimental colour. The former is a Union Jack, except in the case of foot guards. The regimental colour is a flag of the same colour as the facings of the regiment, with the name and titles of the regiment, together with the names of its victories and exploits, blazoned thereon. Both colours measure 3 ft. 9 in. by 3 ft., the staff being about 8 ft. 6 in. Lancers, hussars, rifle regiments, engineers, and artillery do not carry colours, but some cavalry regiments bear guidons in place of colours.

Colours of Animals. The greatest use which the colour of an animal has is that of protecting it against its enemies, or in some cases enabling it to attack its prey without being first discovered. In considering this question what must be taken into account is the general effect produced by contrasting colours on the same animal as well as by the same colour with no contrasts. The general rule is that the colour of an animal is very similar to that of its surroundings, either the earth or the plants near which it lives, thus enabling it to escape detection in the case of 'protective resemblance,' or to catch its prey in the case of 'aggressive resemblance.' Usually the upper part of an animal's body is dark in colour, while the under part is much lighter, the reason for this being that the dark parts appear lighter because of the light shining on them, and the light under parts tend to dispel the shadows, thus doing away to a certain extent with the solid appearance of the animal and helping it to become somewhat invisible. Some animals, however, are the exact opposite of this. The resemblance of the animal to the part of the earth on which it lives may be produced by colouring identical to that earth, as is seen by the colour of all animals which inhabit desert regions, their coats resembling the sand in colour, or by a decided contrast. The zebra is an interesting example of the latter, being rendered invisible in the moonlight on account of its strongly differentiated patches of colour, and so being preserved from its enemy, the lion, whose habit it is to hunt by night. In the case of the tiger the resemblance is found between his stripes and the jungle in which he lives, and in this way he is enabled to track and kill his prey before being discovered. The fox also illustrates this 'aggressive resemblance,' and in snowy regions the coats of these animals and those of some others turn white to match the snow. Spots also are a great help to the animals so marked, owing to the spots of sunlight blending with their spotted coats. Another characteristic is that of resembling something else which would not attract the enemy in any way. Thus, some butterflies exactly resemble a withered leaf on the under side of their wings, and in some instances insects are

exactly like the twigs of a tree; the eggs of birds may resemble the stones amongst which they are laid. Other animals, again, use their colour with quite a different object in view—namely, to act as warnings to their enemies. The skunk is an excellent example of this. It is, in itself, very conspicuously coloured, and makes no attempt to conceal the fact, but as in the case of other animals so clothed, its colour is accompanied by a very disagreeable quality—the power of emitting a liquid with a most objectionable odour, so that no enemy would continue to attack it. This is known as ‘warning coloration.’ In certain cases a conspicuous colour helps to keep the members of the same species together for their own protection, but this is not nearly so common. Another method pursued by some animals is that of mimicry. This consists in resembling some other animal which is very unpleasant to its foe, and in this way enabling itself to escape unhurt. This is the case with certain flies which resemble bees for the purpose of protecting themselves, hence the ancient belief in the spontaneous generation of ‘bees’ from the carcasses of cattle; in reality the so-called bees were the flies formed from eggs laid in the carcasses. This mimicry is sometimes that of colour, and at others that of form or movement. Some butterflies and moths, not closely related, have come to mimic one another, thus sharing the expense, as it were, of educating birds to avoid them. The C. of A. have also been said (by Darwin) to play a large part in sexual selection, the theory being that the most brilliantly coloured males will be selected by the females, so that these colours will be perpetuated and increased. This theory of sexual selection is not now held in much favour. The colours in animals may be due either to their structure or to certain pigments. In the case of some birds, and also of some fish, the colour is due, in part, to the effect produced by the light on the animals and in part to a certain pigment, which is also affected by the light, while in some insects it is due to uric acid. In some animals a pigment exists which produces a greenish colour, and in certain cases chlorophyll is found with this colouring, apparently being formed by means of the food. There remains, however, a great deal to be discovered with regard to these pigments. See H. B. Cott, *Adaptive Coloration in Animals*, 1910.

Colours, Primary, red, yellow, and blue, in practice, in contrast to the red, green, and violet of pure physics.

Colours, Secondary, colours produced by a mixture of pigments, representing the primaries. These are orange (a mixture of red and yellow), green (blue and yellow) and violet or purple (red and blue).

Colours, Tertiary, colours produced by a mixture of two or more of the secondaries; generally dark and tending to greys or browns, but in practice lightened or darkened by the addition of white or black pigment.

Colquhoun, Sir Iain, seventh Baronet of Luss (1887–1949), former Lord High Com-

missioner of the General Assembly of the Church of Scotland. Chief of his clan, C. served with the Guards Brigade in the First World War. In 1913–14 he became light-weight boxing champion of the Brit. Army. An enthusiast for sport and playing fields, C. became a member of the Scottish Boxing Board of Control and served as chairman of the Scottish Committee of the Playing Fields' Association, and of the National Advisory Council for Scotland on physical training and recreation. Had a long association with Glasgow Univ. and was returned as rector in 1934.

Colt, Samuel (1811–62), Amer. inventor, b. at Hartford, Connecticut; went to sea, and later lectured on chem. In 1835 he obtained his first patent for a six-barrelled rotating breech revolver, and founded the Patent Arms Company at Paterson, New Jersey, for the manuf. of these weapons. In 1852 he built the enormous works of the Colt's Patent Fire-Arms Manufacturing Company at Hartford.

Coltsfoot, popular name of *Tussilago Farfara*, a herb of the order Composite, growing wild in Britain. Its leaves are heart-shaped and denticulate. Stems bear a head of bright yellow flowers. The leaves form the basis of herb tobacco used as a remedy for asthma.

Coluber, genus of ophidian reptiles (snakes). The fifty-odd species are all non-poisonous, and occur in Europe, Asia, and America. The eye is large, the pupil round, the scales are either smooth or keeled. The species attain a great length and are oviparous. *C. quatuorlineatus*, a native of S. Europe and the Tyrol, is 6 ft. long; *C. longissimus*, the Aesculap snake, of S. and S.E. Europe, attains a maximum of 5 ft.; *C. leopardinus* is a beautiful snake found in Europe and Asia Minor.

Columba, Columbidae, see PIGEON.

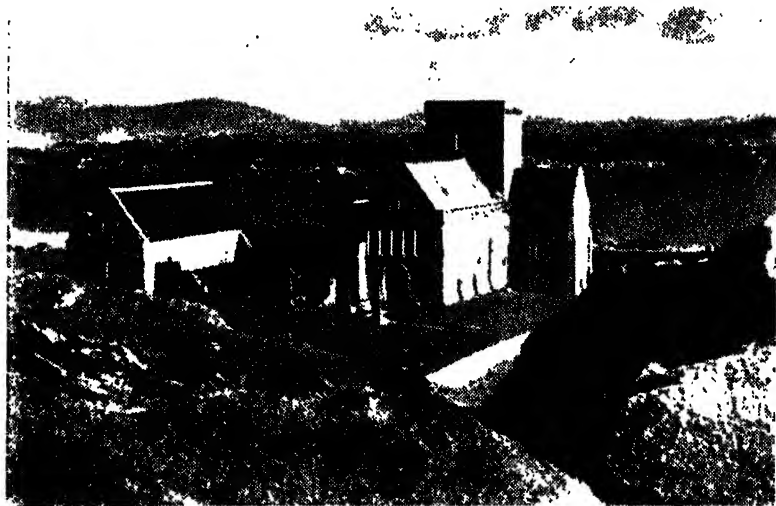
Columba, St. (521–97), known also as Columkille and Colm, is said to have been b. at Gartan in co. Donegal, in the N. of Ireland, of very noble birth. He early learned the principles of asceticism under St. Finnian of Clonard, and in 546 was ordained priest. About four years later he founded the great monastery of Durrow, as well as many smaller ones, including that of Derry. In 562 he was excommunicated by an Irish eccles. synod, on the charge of having caused the sanguinary battle of Culdreimhne. In consequence of this he set out in the next year, and with twelve followers made his way to the little is. of Ily or Iona, off the W. coast of Argyllshire, and planted a monastery there. He then settled down to the work of his life, the conversion of the Picts dwelling beyond the Grampians. Through his teaching, example, and miracles the work progressed favourably, and C. settled monasteries in various parts, all subject to Iona and a rule which he himself compiled. In this strenuous supervision and in visits to his native land the saint passed some thirty-five years, during the last five of which his health was fast falling him. Then, early

in the morning of June 9, 597, when matins had just been chanted, he breathed his last, kneeling before the altar of his own church of Iona. Tremendous energy was the keynote to C.'s character. Adamnan tells us that he could not bear to remain idle a moment, and the somewhat warlike aggressiveness of some of his acts may be put down to the same cause. According to tradition as recorded in the Annals of Clonmacnoise he wrote some 300 books with his own hand, though

debert went into Italy. Here he settled among the Apennines and founded the monastery of Bobbio, where he d.

Columba Noachi (Noah's Dove), small constellation in the S. hemisphere, close to Canis Major and Lepus. Puppis, Pictor, and Caelum are also near by. Gould believes that it was so named as early as the sixteenth century.

Columbarium (Lat. *columba*, dove), name of the niches or buildings for the storage of sepulchral urns containing



The Iona Community

THE ABBEY CHURCH OF ST. MARY, IONA, AND MONASTERY BUILDINGS

The existing buildings were originally founded by Benedictines, c. 1203, near the site of St. Columba's church, c. 593. The church has been restored by the Church of Scotland, and the monastery buildings by the Iona Community.

there is scant authority for the identification of any. His life was austere in the extreme, yet everywhere his cheerfulness and virtue predisposed men in his favour. See W. P. Montalembert, *St. Columba*, 1868; W. P. Skene, *Celtic Scotland*, 1877; Adamnan, *Vita Sancti Columbæ*, ed. J. T. Fowler, 1894; W. D. Simpson, *The Historical Saint Columba*, 1927; Lucy Menzies, *St. Columba of Iona*, 1935.

Columban, or Columbanus (543-615). Irish monk and saint, b. in Leinster of a noble family. He entered the monastery of Bangor in Ulster, studying there under St. Comgall. When a man of middle age he led a band of monks on a missionary expedition to France, and preached with much success in Upper Burgundy, founding the two monasteries of Luxeuil and Fontaines. He was finally expelled from the latter by Thierry, king of Burgundy, whom he had offended by his unsparing denunciations of vice, and after visiting the courts of Clotaire and Théo-

ashes of the dead. The fancied resemblance between a dovecote and the niches round the walls of Rom. burial-chambers gave rise to the name. Such tombs were mainly used for the poorer classes, and were erected by wealthy families for their slaves, or by funeral associations under the empire. Examples near Rome are those of the Vigna Codini at the Lician Gardens. The *ustrina* were attached to the *columbaria*. In modern times C. means a room connected with a crematory, provided with niches for the funeral urns.

Columbia, or Oregon, with the exception of the Yukon, the largest riv. of the W. side of America, rises in Brit. Columbia, on the W. slope of the Rocky Mts. Its course at first is S. through various lakes, till it reaches the N. border of Washington. Here it receives the Clark's Fork on its l. b. It then continues its course irregularly to the Oregon frontier, before reaching which it receives, on the l. b., the

Spokane R. and the Snake R., the latter being its largest trib. It then turns W. once more, and flows along the N. border of Oregon, casting itself into the Pacific by an estuary about 35 m. long and from 3 to 7 m. wide. The C. passes through a mountainous country, and its scenery is remarkable. The salmon fisheries flourish, and there is a large cannery station at the mouth of the riv. The falls, however, make clear navigation possible for only 160 m., up to the Cascades. Above these there is another navigable stretch of 50 m. reaching to Dalles. The C. is 1400 m. long, and its basin has been computed at nearly 300,000 sq. m.

Columbia: 1. Cap. city of S. Carolina, U.S.A., on Congaree R. just below the falls; it is navigable to this point. C. is an important railway centre, has manuf. of cotton goods, cars, large iron-works, and trade in cotton. The state univ. was founded in 1805. There are many fine public buildings. It was occupied by Gen. Sherman in Feb. 1865, and much of it burnt. Pop. 62,000, many coloured. 2. City of Lancaster co., Pennsylvania, U.S.A., on the Susquehanna R., first settled by Quakers in 1726. Makes clothes, has iron works, and trade in timber. Pop. 11,500. 3. Cap. of Maury co., Tennessee, U.S.A., on the Duck R. 10 m. S.W. of Nashville, in a fine farming country. Many mules are raised and there are flour mills, etc. There was fighting here during the Civil war. Pop. 10,500. 4. Cap. of Boone co., Missouri, U.S.A.; here are the univ. of Missouri and numerous colleges. Pop. 13,600.

Columbia, British, see BRITISH COLUMBIA.

Columbia, District of, the seat of gov. of the U.S.A. It is an artificially rectangular piece of ter. of some 69 sq. m., within the ambit of the state of Maryland. After the Amer. colonies achieved their independence and formed themselves into a new nation, Philadelphia was at first the cap. But as there were in the beginning sharp jealousies between the various states, it was deemed wise to establish a cap. about midway between the N. and S. states along the Atlantic sea coast, this ter. at that time comprising all the then U.S.A. Originally an area of 100 sq. m. was ceded for this purpose by Maryland and Virginia, but in 1846 Virginia's portion S. of the Potomac was given back to that state. The Potomac R. flanks the dist. for its entire length to the S., and also flanks part of the perimeter of the city of Washington. Since an Act of Congress of 1895 the city of Washington has been coextensive with the dist. The dist. was formerly estab. by Acts of Congress in 1790-91. Under these Congress itself assumed entire jurisdiction. Congress first met in the dist. in 1800. John Adams, second president of the U.S.A., was inaugurated in Philadelphia, but was the first chief executive to live in the White House in Washington. Thomas Jefferson, third president, was the first one to be inaugurated in Washington. The feature of the dist. is that the gov.

is by Congress directly as to legislation and by three executive commissioners named by the President and confirmed by the Senate. Each house of Congress has a special committee on dist. affairs. The result is that the dist., and Washington in particular, have not grown up in a haphazard fashion, but according to a fixed plan, with the determination to make the cap. one of the most beautiful in the world. Another peculiarity about the dist. is that persons born there are practically disfranchised. There are no municipal elections, because the gov. is in the hands of the executive commissioners and Congress. In presidential elections natives of the dist. have no vote. The total pop. is 663,000, of whom about 28 per cent are Negroes. There are many industries in the dist., goods being produced primarily for local consumption. The revenue of the dist. is raised by real estate, personal, and business taxes, and from treasury grants in aid. There are five univs.: Georgetown, under the Jesuits; George Washington, non-sectarian; Howard, for coloured students; Catholic Univ. of America; and the National Methodist Univ.

Columbia University, New York city, U.S.A. Originally founded as King's College in 1754, and reorganised as C. College in 1784. It is one of the most important educational institutions in America, and owes much to the efforts of Nicholas Murray Butler (d. 1947, q.v.), who was its president for forty-four years. The leading residential colleges are C. for men undergraduates, Barnard (founded 1889) for women; Teachers; Seth Low Junior; and St. Stephens; which together house approximately 15,000 students. The school of journalism was founded in 1912, and the C. U. Press estab. 1903. The combined libraries amount to 1,025,000 vols. The faculties include arts, political science, philosophy, pure science, mines, engineering, chem., law, medicine, pharmacy, architecture, journalism, business. There is a teaching staff of 2462. Gen. Eisenhower became president in June 1948.

Columbine, or *Aquilegia vulgaris*, Brit. species of Ranunculaceae which grows wild and is cultivated as an ornamental plant. The leaves of the flowers are arranged in whorls, the five sepals are petaloid, the petals are prolonged into long spurs and are visited by long-tongued insects for the honey they contain; the stamens are numerous, and are arranged in whorls of five. The androecium matures before the gynoecium, and fertilisation is effected by means of humble-bees.

Columbine (from It. *columbina* and Lat. *columba*, a dove), short-skirted, fairy-like maid who, in all pantomimes, dances with the Harlequin, her lover.

Columbite, niobate of iron and manganese, containing some tantalum. It occurs chiefly in pegmatite veins, bearing tantalite, cassiterite, and wolframite in the Black Hills, S. Dakota, and in W. Australia.

Columbium, alternative and more usual

name for the chemical element Niobium (q.v.).

Columbus: 1. Cap. of Ohio, U.S.A., on the Scioto R., 103 m. N.E. of Cincinnati. The streets are handsome and broad, and there are splendid buildings, including the Capitol, the State Univ.—one of the best attended in the U.S.A., and a stadium with 72,000 seats, and public libraries with 600,000 vols. It is an important industrial centre. Iron and steel works, manufs. of machinery, automobiles, cigars, etc. There was a disastrous flood in 1913, and the city hall, which has since been replaced, was destroyed by fire in 1921. C. was named after Christopher C., because without him it could never have come into existence. Pop. 306,000. 2. City of Georgia, U.S.A.: one of the leading industrial centres of the S. of the U.S.A. The falls of the R. Chattahoochee generate electricity. There are manufs. of cotton goods, iron foundries, etc., and a large export of cotton. The first cotton-mill worked by electricity was in C., and artificial ice was first made on a commercial scale and industrial training provided here by public schools. Pop. 53,200. 3. Cap. of Bartholomew co., Indiana, U.S.A., on the Big R., has leather and machinery industries and saw-works. Pop. 11,700. 4. Cap. of Lowndes co., Mississippi, U.S.A., on the Tombigbee, has timber and cotton industries. The Mississippi College for women, with 1100 students, is here; 1500 soldiers, victims of the Civil war, were buried in Friendship cemetery. Pop. 13,600. 5. City of Platte co., Nebraska, U.S.A., raises agric. products and has sev. factories. Pop. 7600.

Columbus, Bartolomeo (d. 1514), brother of Christopher. An excellent cosmographer, who produced many ingenious globes, maps, and sea charts. He is said to have been deputed by Christopher to lay his project of exploration before Henry VII. of England, but to have been delayed by pirates till after the patronage of Ferdinand of Spain had been obtained. He took part in his brother's discoveries, and was honoured together with him in 1493. In 1494 he went to San Domingo, of which he became governor, and where, after sev. expeditions, he d.

Columbus, Christopher (Latinised form of It. Cristoforo Colombo; Sp. form, Cristóbal Colón) (c. 1436-1506), famous navigator and discoverer of the New World, b. near Genoa, where his father was a woolcarder. The exact date of his birth is uncertain, authorities varying from 1436 to 1457, but 1446 is the most probable. It is said that for a time he followed his father's trade, but he was certainly at sea before the age of fifteen. The accounts of his early voyages are doubtful and obscure, but they extended over a vast range, from the Levant to Iceland. In 1470 he was wrecked off the coast of Portugal, near Cape St. Vincent, but he came ashore on a plank, and settled in that country. Before 1480 he had married Felipa Moñiz, the daughter of Bartholomew Perestrelo, an important navigator and captain, first governor of Porto Santo. For some years

C. had been in correspondence with Paolo Toscanelli, the Florentine astronomer, as to the possibility of reaching Asia by sailing westward. This project was present in his mind as early as 1474, and had been fostered by the reports of seamen, rumours heard in Iceland, and the surmises of the ancients. His hypotheses were fairly correct. He realised the spherical form of the earth, but he underestimated its circumference. When, in addition to this, he over-estimated the size of Asia, his idea of the distance he must go was about one-third of the correct one. It was necessary for him to find some sovereign to support him in his



CHRISTOPHER COLUMBUS

enterprise. He applied first to John II. of Portugal, and then by letters to Henry VII. of England. He visited Spain and applied to the powerful dukes of Medina Sidonia and Medina Celi, and this latter nobleman referred him to Queen Isabella. After some seven years of persuasion, journeying, and doubt, the Genoese at last succeeded in obtaining the help he required. On Aug. 3, 1492, he set out from the tn. of Palos with one ship of 100 tons, the *Santa Maria*, and two caravels, the *Pinta* of 50 tons and the *Niña* of 40 tons. He first went to the Canary Is., and thence, on Sept. 6, the expedition really set out. His men were insubordinate and discontented from the beginning. Whatever happened they interpreted in an adverse manner, and the variations of the magnetic needle reduced them to great terror. On Oct. 12 an is. was sighted, and named by C. San Salvador, now probably Watling Is. The expedition then cruised in the neighbourhood, discovering Cuba and Hispaniola or Espanola (Haiti). On this latter is. the *Santa Maria* went aground, and had to be abandoned, and C. was compelled to return to Europe with the two caravels. Here he was received with the greatest enthusiasm, and honours were showered

upon him. After six months in Spain, he started westward once more, on Sept. 25, 1493, with a larger squadron and 1500 men. On this voyage the is. of Dominica was discovered. The great explorer, however, found the task of governing his colonies beyond his power, and after vexatious quarrels and illness, he returned to Spain in 1496. In 1498 he made his third voyage, on which he reached the mainland of S. America, though he had coasted it as far as the Orinoco before he discovered its character. Many complaints had meanwhile been sent home from the colonists, and Ferdinand withdrew his favour from C. In 1499 a governor was sent out to supersede him, and he himself returned to Spain in chains. On his arrival the tide of popular feeling again turned in his favour, and he was released with fresh honours, and in 1502 he made his fourth and last voyage in search of the passage to India. After exploring the gulf of Mexico he returned to Spain, and *d.* in none too prosperous circumstances at Valladolid. *See* Fernando C.'s life of his father (Eng. ed., 1867), and biographies by Washington Irving, 1828; Sir A. Helps, 1869; H. B. Adams and H. Wood, 1892; and Sir C. R. Markham, 1893. *See also* R. H. Major's trans. of his *Select Letters* (Hakluyt Society), 1847; H. Harrisse, *Christophe Colomb*, 1884, and *Christophe Colomb devant l'histoire*, 1892; M. André, *Christophe Colomb* (Eng. trans.), 1928; A. de Hevesey, *The Discoverer* (life and adventures) (trans.), 1929; *The Voyages: Journals of First and Third, and Letters concerning the First and Third Voyages* (including an account of the second voyage, by A. Bernaldez), ed. by C. Janes, 1930; S. de Madariaga, *Christopher Columbus*, 1939, 1949.

Columbus, Diego (c. 1480-1526), son of Christopher C., *b.* at Lisbon; in 1484 went to Spain with his father, and later obtained a post at court. In 1506, at his father's death, he became admiral of the Indies; in 1509 went to Hispaniola as governor of the Indies; in 1520, after long litigation, inherited his father's viceroyalty. He was recalled from the Indies in 1523, and *d.* at Montalban.

Columbus, Giacomo, or Diego (c. 1450-c. 1515), youngest brother of Christopher, *b.* at Geneva; went to Spain at the news of his brother's discovery, and accompanied him on his second voyage. In 1493 he commanded the commission entrusted with the temporary gov. of Hispaniola, but was unsuccessful, and was sent back to Spain as a prisoner in 1500.

Columbus, Samuel (1642-79), Swedish author. A favourite pupil of G. Stjernhjelm (*q.v.*). He is especially noted for his hymns, which are the first genuine ones in the language. Among his works are *Den Bibliske Verld* and *Odæ Succææ*, in which he follows the Ger. poet Opitz. *See* P. D. A. Atterbom, *Svenska diare och Skaldar*, 1841-43.

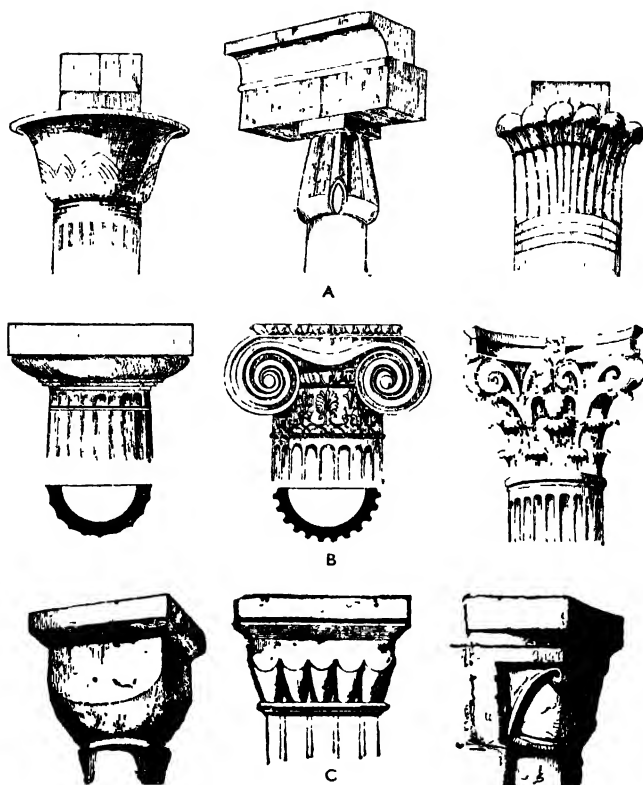
Columella, Lucius Junius Moderatus, Lat. writer on agriculture of the first century A.D. *B.* at Gades in Spain, lived partly in Syria, but chiefly at Rome;

probably *d.* at Tarentum. He was a contemporary of Seneca. His chief work, *De Re Rustica*, the fullest ant. treatise on practical agriculture, consists of twelve books in dactylic hexameters, and is addressed to a certain Publius Silius. The style is easy and copious, but the information is often of doubtful accuracy and seems to have been derived from books.

Columnkille, *see* COLUMBA, ST.

Column, in architecture, a vertical supporting member, cylindrical or approximately cylindrical in shape, composed of stone or of some similar material. A C. normally consists of three parts, the capital, the shaft, and the base, and the two former are always found, whereas the early Egyptian and Doric Cs. had no base. In the thirtieth century B.C. Cs. were in use among the Egyptians, and were either octagonal or polygonal. In these the idea seems often to have arisen from the imitation of a bundle of reeds tied together. Since, in all Cs., ornament is chiefly reserved for the capital, and this is the main decorative feature, it may be mentioned that the Egyptian capitals were generally square, lotus-, or vase-shaped, though there was great variety of form. In the architecture of Persia and Assyria, the C. is an unimportant feature, but it is of the highest importance in dealing with Gk. and Rom. work. In the classic orders the construction of each part of the Cs. was strictly according to rule, and the highest excellence of proportion was attained. In the Doric order (Rom.) the height of the shaft is six to eight times the diameter, in the Rom. Ionic eight or nine times, and in the Corinthian about ten times. The distinctions of the capitals are also important. The Doric has a plain squared capital, while the Ionic is characterised by its volutes, and the Corinthian by its leafage, combined with volutes. These are the three great classical orders, and Vitruvius speaks of no others. Two additional ones, the Tuscan and the Composite, are named by post-Renaissance writers. Of these the Tuscan is a particularly plain form of Doric, and the Composite is merely a variation of the Corinthian. All these Cs. taper from the base to the capital, while about one-third of the way up there is a slight swelling (the *entasis*), designed to prevent an optical delusion by which the C. would otherwise appear concave. Cs. are often carved with channels down the shaft, known as flutings. In Gothic architecture the Cs. generally do not taper, and are of infinite variety in all parts. Single Cs. are often erected to commemorate some great event, *e.g.* Trajan's C. and the Nelson C. (*See* illustration, p. 96.)

Column, military formation in which the units are arranged one behind the other, ser. ranks in depth. When military science was less developed, the European armies always fought in C., the soldiers of Napoleon invariably using this formation. The one exception was the Eng. Army, which always preferred the line. The advent of the breech-loading



EXAMPLES OF CAPITALS

A, Egyptian; B, Greek; C, Norman.

rifle, making it still more advantageous than formerly to have a long fighting front, led to the giving up of the columnar formation and the general adoption of the line. Reserves, however, still move in C., as this method is easier for movement. A Brit. battalion in C. has its four companies disposed one behind the other in parallel lines, the distance between each pair being equal to the front of one company. (Many infantry battalions, however, now have only three rifle companies, the fourth being a machine-gun company.) In half-C. this distance is halved, and in quarter-C. it is reduced to six paces. When cavalry are moving in squadron C., the four troops which compose a squadron are arranged one behind the other in such a manner that a wheel to either side would bring them into line. There are various other minor distinctions of columnar formation, according to the

kind of troops employed, and the term is often used somewhat vaguely to describe any body of troops moving rapidly. Thus we speak of Cs. of artillery, supply Cs., and Cs. under the command of a certain general.

Columna Rostrata: 1. The name given to the triumphal pillar in the forum at Rome commemorating the victory of Duillus over the Cathaginians at Mylae in 260 B.C. The name originated in the fact that the column was decorated with the beaks (*rostra*), of the vessels which had been captured. 2. A book of this name, dealing with the Brit. Navy, with special reference to the Dutch wars, was written by Samuel Colliber in 1727.

Colunga, tn. of Villaviciosa dist., Oviedo, Spain, on the N. coast, 20 m. S.W. of Gijon, with fishing and anthracite mining industries. Pop. 7800.

Colutea, genus of leguminous plants,

consists of hardy shrubs, all of which are found in S. Europe, in Palestine, and in the Himalaya Mts. *C. arborescens*, the bladder-senna, is often cultivated as an ornamental plant. The fruit is an inflated legume, and the leaves are frequently used in the adulteration of senna.

Colville, Sir Charles (1770-1843), Eng. general who served in the Irish insurrection of 1798, in the Ferrol expedition of 1800, the Egyptian expedition of 1801, the Peninsular war of 1810-14, and in Belgium, 1815. In 1819 he became commander-in-chief at Bombay, and in 1828 governor of Mauritius.

Colville, Sir Henry Edward (1852-1907), Brit. officer. His first experience of active service was in the Sudan campaign of 1884, where he took part in the engagements of El Teb and Tamai. During 1884-85, he served with the Nile expedition, being present at Abu Klea. He was acting-commissioner in Uganda from 1893 to 1895, and commanded the Unyoro expedition. In 1899 he went out to the Cape at the outbreak of the S. African war in command of a brigade of guards. He served under Lord Methuen at the battles of Belmont, Modder R., and Magersfontein, at the arrival of Lord Roberts on the scene of action he was given command of the 9th Div., and assisted in the operations leading up to the battle of Paardeberg in Feb. 1900. Owing to the unfortunate engagements at Sanna's Post in March and at Lindley in May, C. was superseded and recalled to England in July. Among his pub. works are *The History of the Sudan Campaign* (1886) and *The Work of the Ninth Division* (1901).

Colvin, Sir Sidney (1845-1927), Eng. literary and art critic, b. at Norwood. In 1876 he became director of the Fitzwilliam Museum, and in 1884 keeper of the prints and drawings at the Brit. Museum. His works include contributions to many leading periodicals and to the *Dictionary of National Biography*; *Landor* (1881), *Keats* (1887), both in the English Men of Letters series; *A Florentine Picture-Chronicle* (1898); *Drawings by Old Masters at Oxford* (1902-8); *Engraving and Engravers in England* (1906). He has also ed. *Selections from Landor* (1882); *Letters of Keats* (1887); *Works of R. L. Stevenson* (Edinburgh ed.) (1894-1897); *Letters of R. L. Stevenson* (1899, 1911); *John Keats: his Life and Poetry, his Friends, Critics, and After-fame* (1917); *Memories and Notes* (1921). See E. V. Lucas, *The Colvins and their Friends*, 1928.

Colwyn Bay, watering-place in Carnarvonshire and Denbighshire, Wales, 4½ m. N.E. of Conway, with a fine sandy beach. Pop. 21,000.

Colza, or Rape Oil, non-drying oil, used as a lubricant, for burning in lamps, and in the manuf. of soap. It is obtained from the seeds of *Brassica campestris oleracea*, by crushing and pressing, or by the use of a solvent. The cake which is left forms a valuable food for cattle. The oil when fresh is yellow and practically tasteless and inodorous, but quickly

becomes rancid. Its sp. gr. is about 0.912. The plant is much cultivated, and the oil extracted in France, Belgium, Holland, and Germany.

Coma (Gk. *κομα*, deep sleep), condition of heavy, unconscious sleep, differing from natural sleep in that it is most difficult or impossible to rouse the person in a state of C. The patient is either totally insensible to his surroundings, or has a dull perception of them, with delirium. The former kind of C. is brought about by diseases of the brain and in cases of narcotic poisoning. The second variety is observed in many fevers and frequently is the termination of them, when the patient passes from C. into death.

Coma Berenices (Berenice's Hair), in astronomy, a small cluster of stars in the N. hemisphere near the equinoctial colure. It is said to have been so named by Conon to console Berenice, the wife of Ptolemy Evergetes, for the loss of a votive lock of her hair which had been stolen from the temple of Venus. It is mentioned in the third century B.C. by Callimachus and Eratosthenes, and its definite location is generally ascribed to Tycho Brahe (1602). The cluster has now been accurately measured by Dr. Chase from Yale Observatory.

Comacchio, fort. tn. of Ferrara, Italy; in the midst of the lagoons (Valli di C.), 3 m. from the Adriatic, and 28 m. S.E. of Ferrara. A bishop's see. Chief industry, eel-fishing, and the extraction of salt. Pop. 9,000.

Comanches, tribe of N. Amer. Indians belonging to the stock variously known as Shoshonean, Snake, Padoucas, and Nimenim. At different times they have inhabited the Snake R. valley, the Middle Loup R. dist., and the Upper Kansas ter. (in the eighteenth century), and the region about the headwaters of the Brazos, Colorado, Arkansas, and Missouri Rs. In 1867 they were concentrated in the Kiowa, Comanche, and Wichita Reservation, Indian Ter., and in 1904 this was thrown open to white settlers as Oklahoma Ter. The C. now number a few hundreds, and are found in the Kiowa agency, W. Oklahoma. They were originally fierce, restless, and courageous prairie Indians, and were for long a constant terror to white settlers on the Mexican and Texan frontiers. In 1783 they were nominally subdued by the Sp. commander Anza, but continued to give trouble till their final surrender in 1875. They speak a pure Shoshone dialect, which was formerly used by a large number of tribes.

Comayagua, dept. of Honduras, Central America. Mountainous, with some fertile plains, and watered by the Sulaco and Humuya Rs. Contains numerous prehistoric remains. There is gold and silver mining and felling of timber trees in the primeval forest. Until 1880 the tn. of C. was the cap. of Honduras. Pop., dept. 27,000. tn. 4,800.

Comb, toothed toilet instrument, used for cleaning and arranging the hair, for keeping it in position when dressed, and as ornaments for the head. The use of the C. is of great antiquity, and specimens

have been found in anct. Egyptian, Gk., Rom., and early Christian tombs, and in Swiss lake-dwellings, being variously composed of wood, especially boxwood, bone, horn, and ivory. All these materials are still used in the manuf. of Cs., together with tortoiseshell, metal, india-rubber, xylonite, and celluloid. The one most commonly employed is horn, and there are two main methods of manuf. For both the horn is cut into rectangular pieces, damped and heated, and passed out flat. In the first method a series of fine slits, varying with the size of the teeth required, are cut on one side by a small circular saw, which has now superseded the 'stadda' or double handsaw. This involves considerable waste of material, but is the only method possible in dealing with some substances. The second method, known as 'twinning,' or 'parting,' invented by Lyne about 1828, utilises the wedges left between the teeth of one comb to form the teeth of another, so that all waste is avoided. Cs. of vulcanite, xylonite, celluloid, etc., are made by moulding the soft material and afterwards hardening it.

Combaconum, or **Kumbhakunam**, tn. of Madras, India, in the Cauvery delta, 20 m. N.E. of Tanjore. It was the anct. cap. of the Chola kings, and is regarded as a holy place by the Hindus. There are many temples. One pagoda is 147 ft. high with eleven storeys. One of the water-tanks in the tn. is commonly said to be filled with water from the Ganges every twelve years by a subterranean passage 1200 m. long; and it consequently forms a centre of popular attraction. So vast a concourse of devotees enters the water that the surface rises some inches. There are sixteen pagodas on its banks. There is a gov. college. Pop. 60,700.

Combat, Trial by, custom in England, according to the old laws, by which the two parties either in criminal or civil cases challenged each other to fight to decide the guilt or innocence of the accused. The idea was, that if the evidence were insufficient the result of the combat would declare the actual truth. If the case were a criminal one, the parties themselves fought, unless one of the two was a woman, or unfit in any way by reason of age or infirmity. In civil cases they were allowed to employ champions. In the beginning of the nineteenth century this custom was abolished, owing to the decision in the case of *Ashford v. Thornton*.

Combe, George (1788-1858), phrenologist and philosopher, b. in Edinburgh. His works include *Essays on Phrenology* (1819); *The Phrenological Journal* (founded 1824); *The Constitution of Man* (1828), his ablest work; *Notes on the United States of North America*, etc. (1841); *Notes on the Reformation of Germany* (1846). See life by C. Gibbons, 1878.

Combe, William (1741-1823), Eng. author; early life was that of an adventurer, later years being passed chiefly within the 'rules' of the King's Bench prison. He is chiefly remembered as the

author of *The Three Tales of Dr. Syntax*; the first, in search of the picturesque (illustrated by Rowlandson), came out in the *Poetical Magazine* in 1809 and onwards, and was brought out separately in 1812; the second, in search of consolation, was pub. in 1820; the third, in search of a wife, in 1821; and *Johnny Que Genus, the Foundling of the late Dr. Syntax*, followed in 1822. His *Diaboliad*, pub. either in 1776 or 1777, was an imitation of Le Sage, and although inferior to the work of that author, was a great success. His letterpress for Rowlandson's *Dance of Death and Dance of Life* appeared in 1815 (or 1814) and 1816 respectively. See Harold Child's account of the collaboration of C. with Rowlandson in *Cambridge History of English Literature*, xiv. 217-20.

Comber, tn. of Ireland in co. Down. There are flax mills and distilleries. Pop. 2600.

Combermere, Sir Stapleton Cotton, sixth Baronet, first Viscount (1773-1865), field marshal. At twenty-one years of age C. commanded the 6th Dragoon Guards. He served through the campaign against Tippoo Sahib in 1799, including the battle of Malavelly and the siege of Seringapatam. In 1808 he was dispatched to Lisbon, where he won great distinction in active service. He was second in command under Lord Wellington, and led the famous charge of Je Marchant's and Anson's heavy brigades in 1812. In 1826 he besieged and took Bharatpur, a fort which twenty-two years earlier had resisted even Gen. Lake's skill and was indeed, deemed impregnable. It was for this exploit that he received his viscounty.

Combes, Justin Louis Emile (1835-1921), Fr. statesman of the Democratic party. In 1885 he was elected to the Senate, where his vigorous attacks upon clericalism brought him into prominence. He was elected vice-president of the Senate in 1891, and later, when Waldeck-Rousseau resigned he was asked to form a ministry. This period was chiefly remarkable for the attacks on the Church, which C. desired to separate from the State. He made public speeches against the Vatican, and lost no opportunity of belittling the power of the Church. What Waldeck-Rousseau had outlined C. and Briand (q.v.) carried into effect. He resigned with his colleagues in 1895. His political nickname was 'le Petit Père.' Among his literary productions is *Une Campagne laïque*. He was in the Briand Cabinet of 1915-16.

Combin, Grand-Combin, or **Graffenreid**, peak between Italy and Switzerland. It is in the Pennine Alps, and lies E. of the Great St. Bernard, 9 m. S.E. of Martigny. Elevation 14,168 ft.

Combination, Laws of. Till 1824 the laws known by this name forbade as common law misdemeanours any combination of masters or workmen to raise or lower wages, or to increase or diminish the hours or quantum of work. There were, in addition, some thirty-five statutes directed to the prohibition of combinations of workmen against masters. An Act

passed in 1824 repealed all these laws, the rationale of which was the removal of all restraints on trade, and forbade all such combinations as were characterised by some element of violent interference. The effect of the Act, whether anticipated by its framers or not, was to legalise the formation of trades unions for the purpose of controlling masters in the mode of conducting their business. Some limitations on this result were enacted by a repealing Act passed the following year, but there are now no laws against combinations other than the common or statute law against such as amount to criminal conspiracies, as to which see CONSPIRACY.

Combination, in mathematics, see PERMUTATIONS AND COMBINATIONS.

Combinatorial Analysis, branch of mathematics concerned with a variety of problems in theory of numbers, algebra, and geometry, that is of considerable use in the theory of probability. See PERMUTATIONS AND COMBINATIONS.

Combine, term used in industrial warfare to denote temporary federation of employers, usually in any particular industry or related industries, for the purpose of protecting their common interests, whether by keeping up the price of commodities produced by them, or by reducing wages, or the hours of labour, or by any other way. Such a federation was formed in London in 1911 of a great number of employers in entirely different industries by way of mutual protection against the effects of the very prevalent strikes of that year. The basic principle of a C. is that of defence, and therefore it is to be distinguished from a trust (*q.v.*), which is an amalgamation for all or most purposes, usually with the ultimate object of forcing up the price of certain articles. A C., however, is not always of a temporary nature, but sometimes denotes a consolidation of business interests, practically analogous to a cartel, a merger (*q.v.*), or a trust. The permanent C. is either 'horizontal' or 'vertical.' The horizontal C. is the result of the union of a number of firms doing similar business who wish to organise their production on the same basis and to profit from the technical improvement which a united effort makes possible. The vertical C. is that which exists between firms dealing with the same material but at different stages in its manufacture. This combination between the interests of producer and manufacturer tends to suppress the middlemen's profits. Vertical Cs. are common in Germany and the U.S.A., and they have increased in England since the First World War, notably among the industries connected with iron, steel, shipbuilding, paper, and soap. If the C. is not the result of absorption of the smaller industries by the larger, one company, known as the holding company, may sometimes hold controlling shares in each of the other constituent companies in the C. A C. may exist between a number of unrelated businesses such as occurred with the famous Stinnes group in post-war Germany.

Combined Operations Command, formed in Britain during the Second World War and consisting of personnel of all three fighting services. Its primary function was to provide training for amphibian warfare, which comprises all kinds of offensive action from small raids to large assault landings. It was also the duty of the command to plan and carry out raids on the coasts of the enemy. A combined operation is defined as one in which 'two or more of the fighting services co-operate in order to strike the enemy with the maximum of effect at a chosen place and a chosen moment.' The C. O. C. had its own troops of which the 'commandos' formed a notable part. Combined operations are an inevitable consequence of sea power. Drake in the W. Indies in 1585, and Howard and Essex at Cadiz in 1596, showed how a combination of sea and land forces could inflict much damage on the enemy. Some 'conjunct expeditions,' to give them their eighteenth-century name, achieved permanent results, e.g. the capture of Gibraltar by Rooke and Byng (1704), of Quebec by Wolfe (1759), and of Cape Town (1795). Some, like the expeditions to Valcheren (1809) and in the Gallipoli (1915), were failures. Yet others, like the destruction of eighty Fr. ships in St. Malo (1758), were raids designed to inflict loss in men, ships, and stores. It is in this latter category that all combined operations against the Gers. fell until nearly the end of 1942, when an Anglo-Amer. army, supported by numerous ships and aircraft, landed in Fr. N. Africa (Nov. 1942) and, by so doing, altered the course of the war. Theretofore no more had been attempted than raids in varying strength on enemy coasts from Norway to France and Libya, though some, like the raid on St. Nazaire in March 1942, made hist. The first troops specifically chosen for raiding were independent companies formed from volunteers from all the regiments of the regular army and trained for urgent use against the Gers. in Norway. From these companies was developed the idea of forming guerrilla bands known as commandos from the Boer war parallel. It has been officially stated that commandos were formed, because at the time (June 1940) there was no existing unit of the Brit. Army which could be made available for raiding operations, for the most stringent economy in weapons had to be exercised, everything being subordinated to the task of organising the defence of the Brit. Isles against invasion. When the independent companies were replaced by special service battalions, and these in their turn were converted into the commandos, the original conception of their tactical use was preserved, i.e. that they were to be amphibious and learn first and foremost to co-operate with the navy. The physical conditions of commando training were strenuous, but not beyond the endurance of men who had passed a severe medical test. Among the most notable commando raids organised by C. O. C. were the raid on Bruneval

radiolocation apparatus, which was successfully destroyed Feb. 27-28, 1942; the raid on Vaagso, Norway (March 1942), which resulted in a minor battle over the fjords and some desperate street fighting; the raid on St. Nazaire (also in March 1942), the chief features of which were the smashing of the lock-gates by blowing up the ship *Cambeltown* filled with explosives and the firing of delayed action torpedoes; the destruction of a large fish-oil factory on the Lofoten Is. (March 1941); a raid by guerrillas landing from the sea on Gen. Rommel's headquarters at Cyrene, Libya (Nov. 1941); the storming of Diego-Suarez in Madagascar (May 1942); and the great raid on Dieppe (Aug. 18-19, 1942). This last-named operation was an ambitious venture involving an attack by over 5000 Canadian troops, aided by the navy and the R.A.F., the attack extending from Berneval and Belleville-sur-Mer to Varengeville (see also under COMMANDO; DIEPPE RAID).

Combining Weight or Equivalent of any element is the number of units of weight of that element which will react either directly or indirectly with one of the same units of weight of hydrogen. It is not possible always to make hydrogen compounds of all the metals, so sometimes the standard of comparison is taken as oxygen or even chlorine. But by the law of reciprocal proportions (see CHEMISTRY) it is easy then to determine the equivalent of the element; for the combining proportions oxygen and chlorine with hydrogen are respectively 8 and 35.5 (approximately). Occasionally C. Ws. of elements are the same as their atomic weights, although this is by no means universally true, e.g. the equivalents of carbon, oxygen, and sulphur are 6, 8, and 16 respectively, while their atomic weights are 12, 16, and 32. But from this it may be seen that the atomic weight is either the same as the equivalent weight, or is a multiple of it, the multiple depending on the valency of the element. See CHEMISTRY, and ATOM AND ATOMIC THEORY.

Comblès, tn. of France, in the dept. of Somme. During the First World War severe fighting took place about C. during the 1916 battle of the Somme. The Fr. and Brit. actually met in C. on Sept. 26, driving the Gers. before them. The Gers. swept over C. in their final advance of March 1918, and in the Allies' counter-offensive held it with great determination during Aug., its military importance being entirely due to its being the only tn. in that area. Owing to pressure on both flanks, however, they were eventually forced to abandon it. C. has breweries and weaving industries. Pop. 900.

Combours, tn. in the N.W. of France, situated in the dept. of Ille-et-Vilaine, 24 m. S.S.E. of St. Malo. Chateaubriand lived in the feudal castle at C. as a youth. Pop. 4600.

Combrailles, name of two dists. in France, one a plateau called La Com-

brailles du Limousin between Creuse and Cher, the other a dist. called La Combrailles de Bourgoigne, consisting of wooded hills.

Combustion may be said to be chemical action accompanied by the production of heat and light. If heat and light are produced without an accompanying chemical action, C. is not taking place. For example, the carbon thread in an electric glow lamp is never in a state of C. or burning although it glows, because it is *in vacuo*, and therefore undergoing no chemical change. If the amounts of heat and light developed in a chemical action are small, then the C. is said to be slow or incipient. On the other hand, should the amount be great, then it is said to be rapid or active. The phlogistic theory was generally held until 1775 to explain the theory of C. According to this theory, all bodies which were combustible contained a principle called phlogiston. According as the amount of phlogiston contained was large or small, so it was thought would the C. be rapid or slow. As a metal, for example, burned it was regarded as giving off this phlogiston into the air. The material left, which we know to be the oxide of the metal, was in those days called the calx. So calx together with phlogiston was considered to form a metal. Boyle showed that the calx was heavier than the metal, so that phlogiston, if it existed, must have negative weight, but when it was proved that water was formed by the C. of hydrogen in oxygen, the phlogiston theory was finally abandoned towards the end of the eighteenth century. In processes of C. it is usual to regard one body as being combustible and the other as the supporter of C. In this connection the surrounding substance is regarded as the supporter. Now the atmosphere is the most familiar supporter of C., and it is usual therefore to term bodies as being combustible or incombustible according as they will or will not burn in air. Similarly it is usual to talk of other gases as being combustible if they will burn in air, and as being supporters of C. if bodies that burn in air will burn in them. But scientifically this is incorrect. For example, hydrogen will burn in air or oxygen, but oxygen will also burn in hydrogen; coal gas burns in air, but air can be made to burn in coal gas. Similarly it must be remembered that air or oxygen is not necessary for C., e.g. hydrogen will burn in chlorine.

During any process of C. heat is evolved and a certain temp. reached. These are two separate features which are important. The temp. is, of course, measured with the aid of a thermometer, the amount of heat in calories. Now the temp. may vary according as the C. is slow or rapid, but the heat of C. is always the same for the same two substances. Thus iron rusting in air is a process of slow C., and because of this the heat is radiated away without any appreciable rise in temp. If, however, iron is heated and placed in oxygen, the C. is rapid, the temp. consequently rises greatly, because

the heat is evolved quickly, and light is developed and C. manifested. But in both cases the total amount of heat evolved is the same. Therefore the difference between slow and active C. is not in the amount of heat developed, but in the temp. which is attained. It is necessary to raise every substance to a definite temp. before it will take part in C., and that temp. is called the ignition point. Some substances are spontaneously inflammable, because this point is in their case below the normal temp. of the atmosphere. If the temp. produced by the C. of two substances be higher than their ignition point, then those substances, having started to burn, will continue without further application of heat. This is the usual process of C., and the chemical reactions in these cases are exothermic, i.e. are accompanied by the evolution of heat. If the ignition point be higher than the temp. produced, then heat must be continuously supplied in order that the process may be continued. This is because heat is absorbed in these chemical reactions, which fall under the heading endothermic. An interesting illustration of this is the case of nitrogen and oxygen. They can be ignited by the electric spark, but the ignition point of nitrogen in oxygen is higher than the temp. produced; therefore the inflammation does not spread to surrounding particles. If the ignition point were lower than the temp. produced, then the first flash of lightning in the atmosphere would have started a conflagration which would have removed all the oxygen from the air, replacing it by oxides of nitrogen, so rendering life impossible. When a fuel is burnt in a furnace or in an internal-C. engine, the carbon burns and passes off as carbon dioxide (CO_2), the hydrogen burns and forms water (H_2O), which passes off as steam, and the sulphur (if it is present) forms into sulphur dioxide (SO_2). If air is not present in large enough quantities, the carbon is not completely burned and passes off as carbon monoxide (CO); this is the case in internal-C. engines, and is the reason why the exhaust gases of the automobile are so deadly, since carbon monoxide is a very poisonous gas. In order to ascertain the state of C. of a furnace of large boilers, the amount of CO_2 in the flue gases is automatically recorded, the aim being to make the percentage of this gas as high as possible, under which condition the fuel is burnt most economically or, in other words, the most air and the least fuel are being burnt. This point is important in large electricity-generating stations in securing the greatest efficiency in the plant. In the flue gases the percentage of CO_2 sought by boiler engineers is from 10 to 14 per cent. The percentage of fuel wasted between these two points is from 10 to 20 per cent more fuel being wasted at the lower percentage of CO_2 . In the case of the internal-C. engine the percentage of CO_2 in the exhaust gases cannot be regulated definitely, since this would cause a loss of power due to the difference of pressure between the inlet

and exhaust valves. For further information see FLAME; SPONTANEOUS COMBUSTION.

Comedia, term used in old Sp. drama, meaning a tragedy or comedy in three acts. It can be divided into two sections: (1) *Comedia de capa y espada*, represented actors of middle class life in everyday incidents. The characters were clothed in ordinary dress—the cloak and sword of the civilian. (2) *Comedia de teatro*, or *de ruidos*, played by kings and princes. The actors were very richly dressed, and dramatic scenes were chosen.

Comédie Française, official name of the Théâtre Français, the national theatre of France, which dates its estab. from the year 1680, though we may carry it a little farther back. In 1658 Molière's company, playing under the name of L'illustre Théâtre, quitted the provs. and settled in Paris. At that time a rival company at the Hôtel de Bourgogne already held the field, but Louis XIV., who early took the new company under his protection, ordered the two to amalgamate in 1680 under the name of La C. F. This theatre, then the only one left in Paris, received an ann. subsidy of 12,000 livres from the king. In 1687 the C. F. moved from the rue Guénégaud to more commodious quarters in what is now known as the rue de l'Ancienne-Comédie, where a large house had been built for it. Here it remained for nearly ninety years, producing the plays of Molière and of contemporary dramatists. In 1771 the C. F. was removed to the Tuileries, where the company played in a hall built on the site of the Hôtel de Condé, afterwards to be rebuilt as the Odéon. It remained here during the early part of the revolution, but political events led to such dissensions that a split occurred about 1790, which led to the break-up of the old Française and the estab. of two rival companies, the Théâtre de la Nation and the Théâtre de la République. These came to an end in a few years, and a gap occurs in the hist. of the company until 1802, when it was re-estab. by an edict of Napoleon. When at Moscow in 1812, Napoleon pub. a further decree giving full regulations for the conduct of the theatre, and these regulations, with slight modifications, still govern the theatre. Sound films, however, have modified the veto on members appearing on any other stage. In March 1900 the C. F. was set on fire, and a considerable portion was destroyed, though the papers and works of art were saved. A grant of 220,000 francs was promptly made by the gov., and the work of rebuilding was immediately carried out. Many of the most eminent Fr. actors and actresses of recent years, whether of comedy or tragedy, have made their début at the C. F. or have been connected with it during part of their careers, e.g. Sarah Bernhardt, who made her first appearance there in 1862 and for nearly twenty years belonged to the company; Coquelin aîné, whose association with this theatre lasted for over thirty years; Réjane, Jane Hading, Mounet-Sully, Adrienne Lecouvreur,

Dumesnil, La Claron, Talma, Mars, and the Guityrs. The State owns the Théâtre Française and grants it to the Comédie with certain funds for maintenance, and with an administrator who is appointed by the minister of fine arts. Students after matriculation at the Conservatoire may become *pensionnaires* and receive a contract. Later they can become, and remain, *sociétaires* (i.e. *pensionnaires* co-opted by the partner-members). The training of the young players is severe; they must be versed in all styles of Fr. acting to deal with the classic repertory of the Comédie, both to deliver the exacting tragic tirades (e.g. of Racine) on the one hand, and on the other to catch the very spirit of Molière. On the evening of Oct. 20, 1930, the C. F. celebrated the two hundred and fiftieth anniversary of its official creation. Its leading artistes are content, mainly because their position enables them to earn extra money elsewhere and on the films, to receive from the C. F. no more than an average of £800 a year. Its traditions and fame ensure steady receipts, and it has the privilege of engaging at a very modest salary the prize-winners at the Conservatoire, who, as indicated above, are given a free dramatic training by the State and are bound to accept engagements offered at the C. F. In addition to these advantages it has an ann. subsidy of some £8000. See Fournier's *Le Théâtre Français*; De Julléville's *History of French Literature*, 1900, which not only deals fully with the literature of the period, but also supplies an excellent bibliography; J. Clarete, *La Comédie Française de 1680 à 1900*, 1901; F. Sarcov, *A Company of Actors*, 1926; L. Duboch, *La Comédie Française d'aujourd'hui*, 1926; and S. Scaud, *La Comédie Française*, 1936.

Comedy, see DRAMA.

Comedy Theatre, London theatre, situated in Pantion Street, Haymarket. It is a small building, holding no more than 1200 of an audience, and was opened in 1881 with a comic opera, *La Mascotte*. For sev. years this was followed by other operas. Hawtrey. Beerbohm Tree, Marion Terry. Penley. Winifred Emery. Violet Cameron, Cyril Maude, and Maxine Elliott are a few well-known actors and actresses who have appeared on the boards of this theatre, and Jerome, Barrie, Pinero, Grundy, Kitch, and Sutro are some of the playwrights whose works have been produced in it.

Comenius (properly **Komenski**), **Johannes Amos** (1592-1671), distinguished scholar and educational reformer, was b. at Comna, in Moravia, or, according to another account, Niwnitz in the same dist. His parents were poor adherents of the Moravian Brethren. Having studied at Herborn (1612) and at Heidelberg, and having made a tour through England and Holland, C. became rector of the Moravian school at Prerau in 1614. After that he was made pastor at Fulneck, where he remained until 1621, when the tn. was taken and sacked by the imperialists, his house and library being destroyed. He wandered into Poland,

and finally settled at Lissa, where he supported himself by teaching Lat. It was here that he worked out the educational system which was to make him famous, and produced his *Didactica magna* in 1632, the year in which he was chosen elder of the Moravian Brethren. The year before this he had pub. the *Janua linguarum reserata*, written in Lat. and Moravian, which had securely estab. his reputation. This work was trans. into twelve European languages and sev. oriental ones. It was followed in 1633 by the *Janua linguarum vestibulum*, which formed an introduction to it. In 1641



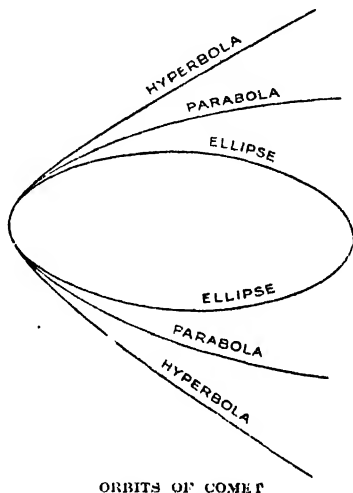
COMENIUS

he was invited to England by the Parliament, on the suggestion of Hartlib, to assist in the reformation of public educational methods. The outbreak of the Civil war put a stop to this design, and C. went on to Sweden, from which country he had received an invitation to aid in the same work. Oxenstierna, the great Swedish minister, commissioned him to prepare a plan for the regulation of Swedish schools, and settled him at Elbing with a pension. Here he remained until 1648, when he returned once more to Lissa, and was made Moravian bishop of that tn. In 1650 he went as educational reformer to Hungary. Here he found time to put together his *Orbis sensuatum pictus* (1658), the first book which tried to instruct children by pictures. In 1656 Lissa was attacked and sacked by the Poles, and C. again lost his house and books. He found a refuge at Amsterdam, where he remained till his death. He was buried at Naarden. In his *Pansophiæ prodromus* (1630) he attempted to give an encyclopedic digest of the humanistic learning of his time. In theology he was a fervent evangelical,

and pub. sev. works on his own sect. Towards the end of his life he inclined greatly towards mysticism under the influence of Boehme. See S. S. Laurie, *John Amos Comenius: Life and Educational Works*, 1881; M. W. Keatinge (trans.), *The Great Didactic*, 1896; P. Monroe, *Comenius and the Beginnings of Educational Reform*, 1900; and R. F. Young, *Comenius in England*, 1932.

Comet, heavenly body of a luminous and nebulous appearance which approaches to and recedes from the sun. The name is derived from the Gk. κομήτης, hairy, a name bestowed on these bodies because they generally possess a 'tail' or 'tails'; this tail in anet. times also being called a beard when the train preceded the nucleus, as is the case when the C. is receding from the sun. Most Cs. are divided into three parts, the nucleus and the coma, which together form the head of the C., and the tail. It is impossible to exactly define the limits of each of these parts, as they shade gradually into the other; quite often, too, a C. is without a tail, others again (as e.g. that of Cheseaux, 1744) may have half a dozen. The nucleus is the brightest portion, the coma which surrounds it is a hazy area of light, while the tail becomes more and more faint and attenuated until it fades out. How attenuated is the matter that composes a C. may be judged by the fact that stars have repeatedly been seen through the thickest parts, and that the earth has passed through the tail of a C. without any observable effect. Thus Sir J. Herschel records that in 1832 he saw a group of stars of the sixteenth magnitude through almost the centre of Biela's C. The composition of a C. as revealed by the spectroscope (which was first successfully applied to determine the constitution of Cs. by Sir Wm. Huggins in 1868) is of extreme tenuity, while metallic lines, such as those of sodium and iron, have been observed in the spectrum of the nucleus. The spectrum of a C. also shows that the light is partly reflected sunlight and partly original. About 800 Cs. have been recorded, the larger portion of them being telescopic only. More than half this number have had their orbits calculated, and are found to move in one or other of three out of the four conic sections, i.e. an ellipse, a parabola, or a hyperbola (see illustration). The number of Cs. moving on elliptical orbits is comparatively few, being about eighty. These short-period Cs. may be expected to return to the sun and therefore necessarily belong to the solar system (q.v.). Chief among these are Biela's, Encke's, and Halley's Cs. The rest of the Cs. move in parabolic paths, except about half a dozen, which, as the result of perturbations, have a hyperbolic movement. Cs. break up by the expulsion of matter from the head of the C. Large Cs. such as Halley's C. emit fresh matter forming new tails at each approach to the sun. The present view is that the cause of the expulsion is electrical in origin. The head of the C. contains reservoirs of the gases identified by spectroscopic analysis,

and as meteoric masses are found to contain hydrogen and other gases it is considered that the head of the C. is composed of meteors. Ultimately the C. will cease to exist when all the gases in its reservoir have been lost. One of the more recently discovered Cs. appeared on June 23, 1927, known as Pons-Winnecke, after its discoverer. A member of the Jupiter family, its nearest distance from the earth on that occasion was about 3,500,000 m., the closest approach of a C. in the past few centuries. Its period is six years. Regarded merely spectacularly and historically, Cs. have ever been the object of man's curiosity



ORBITS OF COMET

and sometimes his fear. Thus the dream of Julius Caesar and the battle of Hastings were believed to have been heralded by Cs., a representation of the latter C. appearing in the Bayeux tapestry. The Bayeux C. has been shown by calculation to have indubitably been Halley's C., and it is conjectured that Halley's C. was the one recorded by the Chinese annals as having appeared in 240 and 87 B.C. The periodic return of certain Cs. has been useful in fixing or confirming historical dates, that of Halley being the first to return as predicted, viz. in 1759 (see HALLEY'S COMET). The most spectacular of the Cs. of the nineteenth century was that found by Donati on June 2, 1858. It stretched over a space of 40°, or nearly a quarter of the sky, and its maximum width was about 10°. See METEORS and SOLAR SYSTEM.

Comfrey, *Symphitum officinale*, plant of the Boraginaceae family. It has hairy leaves and white or purple flowers. Both leaves and root are useful in medicine.

Comillah, tn. in the prov. of E. Bengal, Pakistan, in the Chittagong div. It is situated on the R. Guntl. Pop. 30,000.

Comines, tn. of the Nord dept., France, on the R. Lys, near Lille, with textile industry. Pop. 6400.

Comines, Philippe de la Clyte, Sire de (1445-1509), Fr. statesman and chronicler, b. at the château de Comines, near Lille. In 1461 he entered the service of Charles the Bold, but soon showed a desire to enter the service of Louis XI. of France, his master's adversary. He did this in 1472, and, the tempers of the two agreeing admirably, he soon rose in favour. On the death of Louis in 1483, C. was made one of the counsel in regency, but he incurred the displeasure of Anne de Beaujeu, and was condemned to lose all his



PHILIPPE DE COMINES

estates. However, C. was far too brave and experienced a man to be kept long in disgrace, and Charles VIII. soon recalled him. In 1493 we find him taking part in the treaty of Vercell and engaged on other diplomatic business. After holding sev. offices under Louis XII., he d. at his castle of Armenton. His *Mémoires* form a complete critical survey of the politics of the time. They are characterised by vigour and most acute observation and insight. Their psychological perception and vivid style unite to give them a rare value.

Cominform, the name given to the revival on Oct. 5, 1947, of the Communist International or Comintern (which had been formally disbanded on May 15, 1943) by nine European Communist Parties who, on that date announced their decision to set up an 'Information Bureau' (whence the name C.) in Belgrade. Between 1924-29, as the Soviet grew in power, the C. was increasingly drawn into the factional struggles through which Stalin gradually consolidated his personal dictatorship inside Russia—against Trotsky, Bukharin, and others, and gradually the dependence of international

Communism on the Soviet Union became more explicit. During those years free public discussion of Comintern policy began to disappear, and since 1929, when Stalin's nominees, Molotov, Maniulsky, and Kuusinen assumed the control of the Comintern apparatus, the C. has been exclusively an instrument of the Russian State and public discussion has played no part in the formation of Comintern policy. The dissolution of the Comintern in 1943—dictated by its propagandist effect on Allied public opinion—was entirely to the advantage of the Soviet Union, for the central direction and control of all Communist parties from a single source in Moscow remained unaltered. When the Second World War ended Communists tried to convert the National Liberation Fronts into National Front Govs. in which they could still retain the essential power, even if by remote control. But except in E. Europe, under the shadow of the Red Army (*q.v.*), this transformation could not be effected, for the fall of Hitler had removed the bond which united Catholics, Socialists, and Christians generally in resistance. Hence the necessity to revive the Comintern in a disguised form. The C. is intended to keep before public opinion the fact that Communism is an international movement working to a plan—and to exaggerate the strength of the movement in the eyes of its supporters and its enemies. In this respect the C. has not been unsuccessful, for there is scarcely any political disturbance from Alexandria to Bogota or from Burma to Indonesia which has not been attributed to the machinations of the C. and in this sense the C. has proved a most effective weapon in psychological warfare. But so far the existence of the C., by an ironically dialectical process, has on balance damaged the Communist cause far more than promoted it. Opposition to the Soviet Union has always been most firmly rooted in the belief that she is planning and supporting a world-wide revolutionary movement. The Comintern was dissolved mainly in order to destroy the popular ground for that belief. By founding the C., however blameless and nugatory its real activities, the Communists have resurrected the old spectre at the very moment when it can do most damage to themselves. The part played by the C. in speeding the passage of the Economic Co-operation Act through the Amer. Congress was some evidence of this fact, while at the same time leading public opinion to conclude that the C. was, as its name implied, little more than the information bureau of some nine Communist parties. The functions of the Communist International in directing and supporting the activities of world Communism remain, as before, the responsibility of the Russian State, a fact which was made evident in 1948 by the conflict with Marshal Tito over the industrialisation policy of Yugoslavia. The purpose for which the C. was founded was to exaggerate the strength and importance of world Communism, but by succeeding in this purpose, the C. has largely con-

tributed to the success of the policies which its sponsors wish to frustrate.

Comintern, popular name of the Third or Communist International. It was founded in 1919 in Moscow for the organisation of the revolutionary forces of the world. Membership obliged adherents to press vigorously all communist activities in each affiliated country. During the Second World War the C. proved more of a liability than an asset to Russia, and it voluntarily dissolved itself on May 15, 1943, when the Presidium of the executive committee of the C. decided that unity in the struggle against Germany could best be achieved by the 'vanguard of the working-class movement in each separate country, working within the framework of its own country.' In fact it had held no congress since 1935, while its executive had, with only very limited success, continued the role of mentor to the Communist parties in other countries. This dissolution did not, however, mean that the influence of Moscow over the Communist movement in foreign lands would disappear, but it was evident to Moscow that the formal existence of the C. had served as a rallying point for the reactionary forces in other states. See also ANTI-COMINTERN PACT; COMINFORM.

Comiso, tn. in the prov. of Syracuse in Sicily. It is 13 m. W. of Ragusa, has paper manuf. and a pop. of 33,000.

Comitan, tn. in the state of Chiapas, Mexico, close to the Guatemalan border, the centre of a large trade in sugar and cattle, and making a strong brandy from a maguey plant. Pop. 16,000.

Comitia, constitutional meetings of the Rom. people, summoned and presided over by a magistrate. These meetings are to be distinguished from the *contiones*, where the people gathered informally to receive some announcement from the magistrate. In the C. the people assembled in regular order and the object was the decision by vote of some question of legislation. The C. soon lost their representative character, and their importance declined. There were three kinds of C., named according to the way in which the people were arranged. These were: (1) The *C. curiata*, the original form of assembly, which first consisted in the meeting of the patricians in their thirty *curiae*, or wards. On the breaking down of the distinction between patricians and plebeians, this assembly lost its distinctive character. Though it still retained one or two unimportant privileges, most of its duties were transferred to (2) the *C. centuriata*, an assembly of the whole people in their centuries as arranged by Servius Tullius. To this king is ascribed the div. of the people into five classes, according to the amount of property they possessed, and the div. of each class into hundreds. To this body, the chief power belonged during the republic. It elected the higher magistrates, e.g. the consuls and censors; gave judgment in special cases of appeal, decided on wars of aggression, and passed laws. In 287 B.C., however, it lost much

of its power through the rise of the *C. tributa*. The *C. centuriata* was originally a military assembly, and its meetings could not take place in the city of Rome itself. They were held in the Campus Martius. Each century voted as a unit, according to the majority in itself, and so the decision was by centuries. (3) The *C. tributa* was the assembly of the people according to tribes, and the power of summoning it rested with the tribunes. Originally the city of Rome was divided into four tribes, but as its dominions increased the franchise was extended to comprise thirty-five tribes in all. Gradually power passed to the *C. tributa*, until it became the chief legislative assembly, and continued in a more or less shadowy form down to the third century A.D.

Comity of Nations. In the language of jurisprudence there can be no sanction other than that of arms for the due observance of engagements entered into between nations. There is no legal obligation either to respect the terms of a treaty or to apply foreign law in deciding cases in the courts of a state which is asked to recognise such law. Hence the *de facto* respect for such reciprocal undertakings, depending on a kind of morality, has been very generally ascribed to the comity or courtesy of independent states towards each other. In the light of modern civilisation, with its complicated blending of international interests and ever wider ramifications of reciprocal commercial enterprises, the phrase C. of N., though strictly logical from the standpoint of independent sovereignty, lost a great deal of its force, even before the First World War; and, after that war, the creation of the League of Nations further tended to relegate the phrase to the archaic. Some writers distinguish between C. of N. and private international law and holding that C. of N. comprises purely voluntary acts not due by treaty, which may advance the international policy of the nations so observing them; and including in private international law the application by law courts, in certain circumstances, of the principles of a legal system other than their own.

Comma, in music, is the smallest enharmonic interval, the ninth part of a tone. See *MUSIC*.

Commagene (Gk. Κομμαγενή), anct. prov. to the N.W. of Syria, bounded on the W. by Cilicia, E. by the Euphrates, N. by the Amanus Mts. Its limits have often varied, and its hist. has been full of changes. During the period of the Seleucids it formed part of the Syrian kingdom, and was celebrated as a rich and fertile country. Long before this it had attempted to gain its independence, and in the civil wars which arose between Grypus and his brothers this object was attained and C. became a separate state under a dynasty related to the Seleucids. It remained thus from 162 B.C. to A.D. 72, when it finally became a Rom. prov. under Vespasian. From this period, the years A.D. 17-38 must be taken out, for during this time it was also a Rom. prov. Its cap. was Samosata.

Commandant, title usually given to the officer in command of a besieged fortress or military station, without regard to his rank; otherwise. The name is also applied to the heads of most military schools. In conjunction with the rank of the officer the title is also given to an officer in charge of a greater number of men than his rank warrants, as for example, captain-commandant.

Commander, title given to the captain of the second rank in the Brit. Navy. A C. is generally given the command of a small vessel, but in a number of cases is the second in command of a large one. The responsibility of the navigation of a large vessel usually falls on a C. The title is also used in the U.S.A. to signify a naval officer ranking next to a captain.

Commander-in-Chief, formerly the highest staff appointment in the Brit. Army. Previous to 1855 the office was to a very large extent independent of the secretary of state for war, but since that date and up to its abolition in 1904 was subordinate to that minister. The title was held by the duke of Cambridge up to his death and afterwards by the Earl Roberts. It was resigned by the latter in 1904, and was discontinued. The duties of the office devolved upon the inspector-in-chief of the forces, a title first borne by the duke of Connaught. The title is now, in the Brit. service, borne in peace-time by general officers commanding first-class commands, e.g. Aldershot, E., S., and Middle E. In war-time it is usually applied to the commander of any force of a considerable size, or to the holder of an independent command, and is comparable to generalissimo in continental armies.

Commander of the Faithful (*Emir al Mumenin*), title of the caliphs, first assumed by Omar I., 634-644, and retained by his successors in the caliphate.

Commandery, dist. under a commander, in connection with the Templars, Hospitallers, and other religious orders. The Templars possessed twelve such Cs., which embrace whole kingdoms and provs. in Europe and Asia Minor, viz. Jerusalem (city and kingdom), Acre, Tripoli, Antioch, France, England, Poitou, Aragon, Portugal, Apulia, Hungary. The commanders, or preceptors were controlled by the grand master of the order, but were alone responsible for the treasure of their dist., to which the grand master was allowed no access.

Commandite, *Société en*, kind of limited partnership of a fiduciary character in which the managing partner or partners are responsible with their whole fortunes for the engagements of the concern, but have others associated with them who contribute only definite sums, and are not liable for anything beyond those sums, though they participate in the profits according to any rule which may be agreed on. It is a form of partnership prevalent in France, Belgium, Germany, Italy, Russia, and other continental states, and adopted in parts of the U.S.A. The names of the active partners (in Fr. law called *commandites* or *complémentaires*) alone appear before the public, and they alone manage the partnership business, the dormant partners (in Fr. law *commanditaires*) being usually interdicted from all interference. Such partnerships are not allowed by Eng. law, all the members of an Eng. firm being equally liable for the firm's debts, with no limitation of liability. In England, however, practically identical results can be secured by the formation of a small limited company, and, especially since 1901, by what is known as a 'private company' (see under COMPANY); the legalisation of the latter indeed depriving of a large measure of their weight the arguments of J. S. Mill on the indefensibility of the Eng. prohibition.

Commando, Raiding military forces or mixed naval and military forces, formed by the Brit. Army in 1940 and operating from ships for 'hit-and-run' attacks on the Gers. The Cs. owed their existence to the inspiration of Gen. Dill, chief of the imperial general staff, supported by the zeal and authority of Mr. Winston Churchill, and their immediate *raison d'être* was to find some effective means of helping the army, after the Dunkirk evacuation, to exercise its offensive spirit once again. The term itself was derived from the Boer Cs. of the S. African war, whose successful mobile guerilla tactics after the disorganisation of the main Boer Army suggested to the Brit. authorities in 1940 the adaptation of the idea to the conditions of modern warfare and the employment of analogous tactics against the Gers. then masters of the Continent. Freedom from cumbersome supply columns and reliance on winning their equipment and, if need be, their arms from the enemy were the dominant features of the Boer Cs., which proved highly effective for striking suddenly from the void and disappearing as suddenly. For the Brit. Cs. each trooper was picked for his individual qualities and taught to act on his own initiative—if need be without officers, without orders and nothing but his daring and common sense to guide him. In a raid on the Continent the trooper would have nothing but what he could carry and what he could forage for himself. It was decided that the Cs. should get no rations, no quarters and no transport from the army. Each man was to be allowed 6s. 8d. a day with which to find these things for himself. The O. leaders were picked first—men under forty and exceptionally well qualified in physical fitness and professional ability. The leader was given the rank of lieutenant-colonel and sent to command headquarters to raise his unit. From a list of officer volunteers each troop leader chose one other officer to act as his assistant; and then between them the two selected fifty N.C.O.'s and men who composed their troop. Each man retained the right to go back to his regiment after giving reasonable notice, but few did. As soon as a unit had its complement of officers and men it was concentrated at a seaside tn., and the men of the 'irregular army' joined up with their

corresponding numbers of the 'irregular navy.' These were the raiding flotillas of fast motor boats, commanded by R.N.V.R. officers, with yachtsmen and fishermen to form their crew. After rehearsal for a projected raid there followed the night dash across the sea, a few minutes for landing, then sharp fighting on shore, with E-boats and Stukas of the enemy in close pursuit, until in the end the C. returned home to restart training for the next attack. For these Cs. the 'no-man's-land' of the Boer C. was the sea; and with the small boat squadrons of the navy they began in 1940 to pave the way to the landing of great armies. Among the most noted C. raids were those on the Lofoten Is. and Vaagso in Norway; the landings on Crete; the attacks on Bardia and Tobruk; and the raids on St. Nazaire, Diego Suarez (Madagascar), Dieppe (*see* DIEPPE RAID), and Walcheren. *See also* KEYES of ZEEBRUGGE, BARON. *See* His Majesty's Stationery Office, *Combined Operations*, 1943.

Command Papers, documents like blue-books, comprising reports of royal commissions, returns, and other information collected or issued at the instance of the gov. are said to be 'presented to Parliament by command of His Majesty,' in contradistinction to papers issued by the order of either House of Parliament, such as drafts of Bills with their amendments. C. P. are usually pub. in alternate series of nearly 10,000, and numbered C 1, C 2, and so on up to the number issued, Cd 1, 2, etc., and Cmd 1, 2, etc.

Commandrio, Federigo (1509-75), It. mathematician, b. at Urbino. He was especially learned in the commentation and trans. of the anc. mathematicians, and pub. many eds. of Archimedes, Euclid, etc. The utility of his labours is proved by the fact that nearly all subsequent commentators made use of his works.

Commedia (Gk. *κωμῳδία*, from *κῶμος*, revel; *αἰδώς*, singer), It. word, derived from the Gk. through the Lat. *comedia*. In It. literature it is applied to a tale or romance with a happy ending, and is not used particularly of a tale in the dramatic form, as is the word *comedy* in Eng. literature. Thus Dante entitles his great poem *Divina Commedia*, and likewise some of Chaucer's *Canterbury Tales* are called comedies in this sense.

Commedia dell' Arte, in the hist. of It. drama denotes the popular comedy of masks prior to its transformation into literary shape by Gozzi and Goldoni. *Arte*, in this connection, is equivalent to actors' guild or profession. The stock characters (to give them the names of their familiar Eng. equivalents) were the Clown, Harlequin, Columbine, and Pantaloon. This type of improvised comedy, or *commedia a soggetto*, is supposed to have been originated by Francesco Chereza, hence called Terenziano (*see* TERENCE), the favourite actor of Leo X. Its scenes were written only in *scenario*, i.e. in skeleton form, being connected by the *fazzi* or bliffoineries of the *arlechino*, the representative

of the older Rom. *sannio*. It was in this kind of comedy that Harlequin (*Arlecchino*) reached the apex of his glory. The *C. dell' A.* was essentially an actors' play, the dramatist only wrote an outline plot and left the actors to fill in the parts. Each actor acted a particular mask part, such as those of Harlequin, Pulcinella, and Pantaloon, and always had his stock phrases and stock actions. More types were evolved in course of time, but they were all virtually comprised by the following, mostly developed from the older types: the Doctor, a poor ridiculous learned pedant; Pantaloon (Pantalone), named after Venice's patron saint, Pantaleone, and dressed in skin-tight trousers, who was sometimes an old bachelor but more often the husband of an unfaithful young wife or the father of vexatious young daughters, especially Columbine (Colombina, originally Frascotta), while Harlequin (*Arlecchino*) was sometimes his lackey (*see* HARLEQUIN); the Captain, a braggart poltroon taken from contemporary Sp. drama and modelled on the many unemployed Sp. soldiers of fortune then roaming Italy; the young lovers, often the sons of the old men, and their sweethearts; the lackeys or *zanni*, *Arlecchino*, *Brighella*, or others, of varying degrees of doltishness, brutality, and sly cunning. Variants of these were Pulcinella, ancestor of Punch; Scaramouche (It. *Scaramuccia*) (*q.v.*), Scapin, Mezzetin, Pierrot, etc., all of whom had traditional costumes and often wore masks. Towards the end of the sixteenth century, certain of the more famous It. troupes were invited to visit the various courts of Europe. In Italy, the *C. dell' A.* remained popular until the tradition of improvised acting appeared to die out, towards the end of the seventeenth century and was replaced from the time of Gozzi and Goldoni by regular comedy. In France the permanent It. company gave offence to the king, and their theatre was closed in 1697 but reopened about 1720 and continued playing throughout the eighteenth century. In England also this style of acting was reintroduced after the Restoration, but early in the eighteenth century it gave way to the more popular pantomime, in which the traditions of the *C. dell' A.* lingered on.

Pirandello, the modern It. psychological or metaphysical dramatist, has, to some extent, revived this traditional It. dramatic art or its later development in the masked comedy, for like the writers of *scenarii* for masked players, he delights in constructing fantastic plots with unexpected situations and in embroiling them to such an extent that the unravelling has to be left to some individual character in the role of chorus or interpreter. The initiation of this new movement of the 'Teatro del Grottesco' is, however, attributed to Luigi Chiarelli, a young dramatist who, in 1916, produced a play called *La Maschera e il Volto* (*The Mask and the Face*) which enjoyed great popularity.

Commelin, Isaac (1598-1676), Dutch historian, b. at Amsterdam; he occupied

himself exclusively in research concerning the hist. of Holland, and pub. many works on the subject, among which may be mentioned *Commencement and Progress of the Dutch East Indian Company* (1646); *Life of Frederick Henry of Nassau* (1651), etc.

Commelin, John (1629-92), Dutch botanist, son of Isaac C., was b. in Amsterdam. He there became director of the botanical gardens, which by his skill and labour became the finest in Europe. He pub. sev. books on horticultural subjects. The genus of tropical plants *Commelina* is named after him, as also the family *Commelinaceæ*, which includes this genus and *Tradescantia*, the spiderwort.

Commemoration (or *Encænïa*), concluding festival of the academic year at Oxford Univ., when benefactors are commemorated and honorary degrees conferred upon distinguished Eng. or foreign celebrities. It consists of an oration in Lat. in C. of benefactors; prize compositions are recited in verse or prose. The ceremony generally takes place on the third Wednesday after Trinity Sunday, and is held in the Sheldonian Theatre.

Commendam, anct. method of holding benefices, abolished in 1836. When a living fell vacant, the spiritual duties belonging to it were given to some priest until a suitable successor could be appointed, and the benefice was said to be held *in C.* The emoluments were later also given and the practice grew up of poor bishops thus holding sev. livings. *Commendators* were stewards appointed to take charge of the revenues when a benefice was vacant.

Commensalism (Lat. *com*=cum, together, *mensa*, a table), one of the many forms of intimate association between different animals, or animals and plants, by which one or perhaps both benefit (the term was used by Van Beneden). Care should be taken to distinguish it from parasitism (*q.v.*), for in this case the association is harmful to one of the two organisms; and from symbiosis (*q.v.*), the most intimate form of association, illustrated by the union of algae and fungi, or algae and animals. There are so many forms of C., that while it would be correct perhaps to reserve the term for those cases where the associated organisms share the same food and each benefits, it is better to use the term for those partnerships which do not involve injury to either of the organisms. Of the many forms one of the most interesting is that in which a crab becomes covered with shells or sponges, etc. The sedentary growth is carried about to new feeding grounds and the crab obtains a disguise which aids it to capture its prey. The most striking form, however, is the association between the sea-anemone and the hermit crab. With one species of hermit crab (*Eupagurus prideauxii*) which is found off the Brit. coast, a beautiful sea-anemone (*Adamsia palliata*) is found in association. The anemone envelops the mollusc shell which the hermit has taken, and if disturbed the

hermit withdraws into the shell, while the anemone throws out stinging threads. It is therefore a protection as well as a mask, and in return the crab carries it about and finds its food. The crab, as it grows, has to change its shell, and it takes the anemone with it. Then again in association with another form of hermit crab (*Eupagurus bernhardus*) is found a colony of zoophytes. In this case, however, the C. is not so perfect, for both organisms may be found existing separately. Again, even when they are associated, since the crab is carnivorous, and the zoophyte feeds on matter in the water, no sharing of food takes place, and



COMMENSALISM: COMMON HERMIT CRAB AND SEA-ANEMONES

On the left of the whelk shell is the hermit crab worn, which generally inhabits the upper whorls of the shell. Barnacles, other worms, and saddle oysters add to the hermit's retinue.

the mutual advantage is harder to understand. But when we bear in mind the fact that zoophytes obtain their food by means of slender waving tentacles, and they possess no means of setting up currents in the water, and the fact that the respiration of the hermit would keep the water constantly circulating, the advantage accruing to the zoophyte can be seen. The hermit, of course, in this case also, is masked from its prey. In this case, instead of the hermit moving as the shell becomes too small, the colony grow at the mouth of the shell and lay down matter which actually enlarges the shell, so prolonging the period during which the hermit can remain. Sometimes, again, as when a hermit has become associated with sponges, the commensal grows so large that the hermit can abandon its shell and depend entirely for protection on its associate. Further, when the commensal of the crab is a polype, which buds into a colony, dissolving the shell as it grows, the hermit finally is surrounded by the polype which yields as the hermit itself grows. But apart from these fixed commensals, a large number of organisms are in constant association without being connected.

This may be because the same environment suits each, or it may be that one alone is, or perhaps both are, gaining benefit. Thus little crabs (*Pinnotheres*) can be found inside bivalves, and the same thing is common with crustaceans. The little crab benefits by obtaining food and oxygen from the currents inhaled by the bivalve. It has been suggested that these crabs with their developed sense organs can, by some means or other, warn their hosts of impending danger, thus causing them to close their shells. It is probable, however, that the advantage is in this case on the side of the intruder, and that the host is unable to eject it, even should it wish to. While no damage is being done, it is easy to see how it is possible for C. to pass by slow degrees into parasitism. In a similar manner, not all insects visiting plants are parasites; very often they serve a good purpose by feeding on other visitors, and may therefore act as a defence for the plant.

Commensurable (Lat. *commensurabilis*). Two magnitudes are called C. when they are of the same kind and each contains a third magnitude exactly, examples being a foot and a yard, or the numbers 14 and 21. If no unit or common measure can be found, the magnitudes are incommensurable, examples being the diameter and circumference of a circle, and in arithmetic numbers which are prime to one another, as 17 and 23.

Commentry, tn. of France in the dept. of Allier, 10 m. E.S.E. of Montluçon. It has coal mines and iron works. Pop. 11,000.

Commerce, Chambers of, see CHAMBERS OF COMMERCE.

Commerce, Degrees in, see under COMMERCIAL EDUCATION.

Commerce Court (U.S.A.). The C. C. of the U.S.A., which was created for the purpose of passing on appeals from the decision of the Inter-State Commerce Commission, has jurisdiction in shipping and railroad cases, and in most cases involving questions of mercantile law. The legislative, executive, and judicial appropriation Bill before the sixty-second Congress contained a provision repealing the Act which created the C. C. From the decisions of the Supreme Court of the U.S.A. it appears that the C. C. amplified its jurisdiction beyond its legal limits, and that in a number of cases it gave judgments against shippers and for the railroads when the Supreme Court held the view that the judgments ought to have gone the other way. The president, however, took the view that there was a series of decisions of the Supreme Court that satisfactorily assigned the limits of the jurisdiction of the C. C. and that there was no reason to suppose the court would exceed that jurisdiction in future. The result was that the C. C. was saved. The personnel of the C. C. changes annually by the assignment of one of the C. C. judges to a circuit court of appeal and the designation of another circuit judge to fill the vacancy so created.

Commerce, Department of (American). Is one of the chief depts. of the organisation

for federal administration. The duties of its sev. heads are to promote commerce, mining, manufacturing, shipping, fisheries, patents, and transportation. The dept. includes branches of aeronautics, radio, navigation, lighthouses, standards, steamboat inspection, census, coast and geodetic survey, fisheries, and mines.

Commercial Court is not *de jure* a separate court estab. by law; the term C. C. applies to any court on the king's bench side to which may be assigned the disposal of cases included in the commercial list. Such as it is, the C. C. originated in the special arrangements made by the king's bench judges in 1895 for the dispatch of commercial business 'in accordance with the existing rules and orders.' There are no pleadings in the ordinary sense, but the plaintiff may submit 'points of claim,' to which the defendant may reply with 'points of defence'; nor is there a jury, the whole practice of the court being designed to ensure expedition in trial.

Commercial Education, an offshoot of technical education, is in England mostly under the jurisdiction of the Ministry of Education. The greater part is conducted in evening schools where junior, senior, and advanced classes are held. The subjects taught in junior classes are Eng., arithmetic, shorthand, geography, and sometimes elements of commerce. In senior classes the prin. subjects are shorthand, typewriting, book-keeping, accountancy and modern languages, while in advanced classes general economics, business management and methods of business, trade organisation, etc., are among the subjects studied. Important schools and colleges which supply a C. E. in England are the London School of Economics and Political Science (a.m.), now part of the London Univ.; the City of London College; Higher School of Commerce at the Regent Street Polytechnic; and the Manchester Municipal High School of Commerce. There are also faculties of commerce at the univs. of Manchester and Birmingham, while the univ. of Durham at Armstrong College, Newcastle, offers a commercial degree and Liverpool Univ. a B.A. degree for proficiency in commercial subjects. Other examinations in commercial subjects are held by the Royal Society of Arts, the London Chamber of Commerce, and the Union of Lancashire and Cheshire Institutes.

In the U.S.A. more attention is given to C. E. than in any other country. The high schools include commercial subjects in their curriculum, and nearly a hundred Amer. univs. and colleges have schools or depts. of business administration and commerce. At Harvard, where the School of Business Administration is for graduate students only, the case method of study is employed. Well-known cases which have occurred in commerce have been collected by Harvard profs., and they are studied in detail by the students. Both in England and the U.S.A. there are a number of private commercial schools, some with tuition by correspondence.

Commercial Intelligence Department was inaugurated in 1899 as a branch of the Board of Trade under a controller-general. The headquarters of the C. I. D. in London included an inquiry room, a sample room, and a reading room, and the purpose of the dept. was to collect all available information on all subjects of commercial interest and, for the benefit of Brit. trade, to reply authoritatively to all trade inquiries. Commercial statistics were also drawn up and pub. in the *Board of Trade Journal*. The dept. also supplies free of charge to firms and companies whose names are on a register, kept by the dept. for that purpose, any necessary confidential information such firms and companies may require concerning their particular trades and industries. It also publishes the fullest statistics and information relative to strikes and lock-outs, the condition of the working classes, the prevalent hours of labour and price of commodities. During the First World War increased gov. supervision of industry became necessary, and in 1917 a joint dept. was formed under the Board of Trade and the Foreign Office, called the Dept. of Overseas Trade. Into this dept. the C. I. D. was merged, and after the war the arrangement became permanent. The former functions of the C. I. D. in the collecting and distributing of commercial information remained intact, and as a branch of the Dept. of Overseas Trade its activities were extended in the direction of a commercial consular service for the benefit of traders abroad. The headquarters of the former C. I. D. at 73 Basinghall Street, London, E.C.2, were later the city branch of the Dept. of Overseas Trade under the management of the senior intelligence officer.

Commercial System, see **MERCANTILE SYSTEM**.

Commercial Traveller. The modern C. T. may be defined as the direct representative of a wholesale house employed to travel round specified areas to solicit orders from retail tradesmen. He usually carries samples or some other indication of the nature and quality of the goods he 'travels in,' takes orders not in his own but in his firm's name, and is paid either by salary or commission, or by both. The C. T. of the coaching days was generally known as a travelling chapman (cf. *Ger. Kaufmann*, merchant), and as the ponderous public vehicles traversed only the main roads, many of the travellers who desired to penetrate into remote parts of the country had their horses and saddlebags. Since the era of railways their number has increased enormously, and where formerly London, Manchester, and Glasgow trading houses sent one traveller to each tn. they now send many, each of whom deals with but one special dept. instead of soliciting orders for all the classes of goods dealt in by his principals. Among the C. T. organisations are the Commercial Travellers' Benevolent Institution, the Commercial Travellers' Christian Association, and the Commercial Travellers' Schools Institution.

Commercial Treaties. A commercial

treaty is a bilateral agreement between two nations under which each contracting party binds itself to observe a number of definite stipulations regulating their mutual trading relations. Such treaties have existed in one form or another from the earliest times. The text is extant of C. T. between Rome and Carthage as early as 500 B.C. C. T. during the period of Charlemagne, and in the tenth and eleventh centuries, existed in W. Europe in the shape of royal charters, or other documents from sovereigns, expressly permitting foreign merchants to carry on commercial intercourse within their territory. The purpose of these C. T. made in more turbulent times was rather, through the medium of promises for the protection of the person, effects, and privileges of the foreign merchant, to make commercial intercourse reasonably possible than to adjust mutual relations for the economic advantage of either party; and further, they were of certainty of duration. The modern C. T., in the sense of a bilateral arrangement for a fixed period regulating tariffs and differential duties, has its origin in the political and commercial rivalry of the medieval It. republics. The advantages derived from the greater certainty of a treaty over usage or the personal guarantees of a foreign monarch soon ensured the universal prevalence of C. T., providing for the greater security of navigation and commerce. At first C. T. were restricted to exclusive undertakings between the contracting states, the ultimate object being to destroy the competition of other nations in foreign markets, while at the same time excluding as far as possible all imports other than raw material. Later the most-favoured-nation article comes into vogue. This article, which is susceptible of varying forms, has for its object the mutual extension to each of the contracting states of whatever rights and privileges each has already granted or conceded to some third state or states. An early instance of the most-favoured-nation article is afforded by the Turkish capitulations (see **CAPITULATIONS**), under which Turkey conferred certain rights and immunities to the subjects of Christian nations resident in the Ottoman dominions. The endeavours of various European powers, especially France and Germany during the seventeenth and eighteenth centuries, to introduce schemes of tariff reform by means of C. T., led to the formation of a number of treaties between England, those powers, and other European states, designed to lower the prohibitive rates on Brit. exports. Before the First World War, Germany followed the old principle of exclusive C. T., having concluded or renewed in 1909 a number of treaties with Austria-Hungary, Belgium, Bulgaria, and Italy of a strictly protectionist character. The C. T. concluded between 1884 and 1900 regarding dials, and spheres of influence in various parts of E., W., and tropical Africa are universal in the recognition of the principle of most-favoured-nation treatment to the ex-

clusion of all exclusive privileges. The advent of the First World War brought about a tremendous upheaval in the world of commerce. Nations which had been on friendly terms for years were now ranged in opposing camps, and the C. T. by which they had been bound for long periods were treated as mere scraps of paper. The depression in trade, which naturally follows all wars, set in after the First World War and from 1930 began to be felt most acutely, not only in Europe, but in all quarters of the world. The World Economic Conference, held in London in 1933, was convened in the hope of accelerating the flow of international trade by mutual arrangements for the stabilisation of currencies and by devising ways and means of raising commodity prices. But the conference completely failed of its purpose and served only to intensify the economic nationalism of each great nation. But Great Britain having already reverted to a protectionist fiscal policy and concluded at Ottawa a series of trade agreements with the dominions (see OTTAWA CONFERENCE) was able in 1933 to conclude advantageous C. T. with sev. foreign countries, including Argentina and Denmark. See Hertslet's *Commercial Treaties*, 21 vols.

Commercy, *tu.*, France, in dept. of Meuse, on the Meuse, 20 m. E. of Bar-le-Duc; possesses a noted castle. Pop. 7300.

Commination, The Office of, solemn service and 'denouncing of God's anger and judgments against sinners' appointed to be read in the Anglican Church on Ash Wednesday. It is one of the last remains in the offices of the Church of the public acts of penitence which the primitive Church imposed at the beginning of Lent. The present office is based almost entirely on the earlier forms found in the Uses of Sarum and York. The curses contained in Deuteronomy xxvii. against impenitent sinners are read, and the congregation answer 'Amen' to every sentence as acknowledging the justice of the sentences.

Commings (Lat. *Convenae*), old div. of S. France between Armagnac and the Pyrenees.

Comminuted Fracture, one in which the bone is broken into sev. small pieces, and not merely in one or more places. It may be caused by a crushing blow, and is treated in a similar manner to a simple fracture. A C. F. may further be *compound* or *complicated* (see COMPOUND FRACTURE), when the condition is, of course, more serious.

Commiphora, see BAISAMODENDRON.

Commissariat, designated the dept. responsible for the supply of food and forage for the army in the field. The transport of these articles was also in the hands of this dept., as were the responsibilities for the horsing of the army medical wagons and the ordnance store depts. The C. as a dept. no longer exists; its functions are now carried out by the Royal Army Ordnance Corps which is responsible for equipment, stores, food,

etc., and the Royal Army Service Corps which is responsible for transport.

Commissary, generally the representative of another. An eccles. C. is the deputy of a bishop, by whom the jurisdiction of the latter is exercised in distant parts of the diocese. A military C. is an officer whose duty it is to supervise the provision of food and clothes to an army.

Commission, in business, denotes an agreed reward payable by a principal to his agent in consideration of the agent performing the particular business or service for which he was employed. The right of the agent to remuneration in the shape of C. may either depend on an express term in the contract of agency, or it may be implied from the custom in the trade, or from the general course of dealing between him and his principal. The agent is not entitled to make a personal profit out of the business into which he may enter on behalf of his principal other than the C. agreed upon. If the agent obtains such a profit he is bound to account for it to his principal (see also COMMISSION, SECRET), and further, the principal in such a case may not only repudiate the contract, but recover any C. he may have already paid to the agent. Some of the commonest kinds of agents for whose services C. is usually paid are factors and brokers. A factor is an agent employed by merchants to buy or sell goods or to discount or otherwise negotiate bills of exchange, bills of lading, etc. A factor employed to sell is customarily entrusted with the goods of his principal, and may or may not sell in his own name. A broker is also an agent employed to dispose of goods or property, but differs from a factor in that he is not usually put into possession of his principal's goods; but he may buy or sell in his own name without disclosing the identity of his principal. A distinction should be drawn between factors' and brokers' agreements on the one hand and agencies on the other. A C. agency is not an agency in the true sense of that word. It exists where a C. agent or merchant supplies goods to a foreign merchant, or undertakes to buy or sell goods for another on the best terms he can secure for the other party. It is true he gets not only the price from the other party, but also his C.; but the transaction differs from an ordinary contract of sale in that the C. agent sells to the other at the lowest price and looks to the C. for his profit. A broker differs from a C. agent in that he is no more than a medium for establishing privacy of contract between his principal and a buyer or seller of goods. A stockbroker furnishes an illustration of an agent whose right to C. or, as it is termed, brokerage, is usually implied in the agreement to buy or sell stock, being generally reckoned at one-eighth per cent. of the amount of the stock bought or sold at the market price on the date of the transaction. Since the Gaming Act, 1892, an agent employed to make bets for another is not entitled to recover any C. that may have been promised him. Such agents

may style themselves C. or turf agents, but they are not legally recognised agents.

Commission, Military, in its most general sense, is the document by virtue of which an officer is authorised to perform military duty for the service of the State. The royal authorisation to the feudal barons in Norman times presents but few features in common with the grant to-day of a C. in the army. In the Norman period the regular mode in England of assembling an army, either to resist an invading enemy or to accompany the king on a foreign expedition, was by sending a royal command to the chief barons and spiritual lords, that they should meet at a given time and place with their due proportion of men, horses, etc., properly equipped, according to the tenure by which they held their landed estates. These *tenants in capite* appear to have appointed by their own authority all their subordinate officers. But Cs. were occasionally granted by the kings authorising individuals to raise men for particular service. *Commissions of Array*, as they were called, were also issued by the king of England, probably from the time of Alfred, for the purpose of mustering and training the inhab. of the shires in military discipline; and in the reign of Edward III. the Parliament enacted that no person trained under these Cs. should be compelled to serve out of his own shire except the kingdom were invaded. Of the same nature as these Cs. of array was that which in 1572, when the country was threatened with the Sp. invasion, Queen Elizabeth issued to the justices of the peace in different countries. This privilege of granting Cs. to the officers of the national militia continued to be exercised by the lord-lieutenants of cos. until 1872, when the militia became more closely connected with the regular army. Prior to 1871 Cs. were obtained by purchase, except in the artillery and engineers, where they were always conferred without purchase. To a certain extent this was the case with Cs. granted to officers of the line—those cadets who had completed a course of military education at Sandhurst being so appointed. In other cases the price of an ensigncy or C. was regulated by authority, varying from £450 for a C. in an infantry regiment to £7250 for the C. of a lieutenant-colonel in the Life Guards. In proceeding to higher grades, an officer paid the difference between the price of the grade which he left and of that which he entered. But the system of purchase was abolished by royal warrant in 1871 in favour of the present system of entrance into the army by examination, with promotion to higher grades depending on examination in military subjects (as laid down in the Appendices to the King's Regulations) and (though to a less extent than before the First World War) on seniority. By far the greater number of Cs. are given as the result of success in open competitive examinations. First appointments as sub-lieutenants are, however, also granted to non-commissioned officers with a

special recommendation, univ. students who have passed certain qualifying examinations, and to 'king's' cadets. A number of cadetships for Sandhurst are given annually to young soldiers from the ranks who show qualities of leadership. Cs. now entail previous service in the ranks for a period of at least twelve months, followed by entry to Sandhurst. At Sandhurst the cadet is still in the ranks until he has passed out. The commissioned officers of a battalion of infantry are as follows: Field-officers—colonel, lieutenant-colonel, and major. Regimental officers—captains and lieutenants. Staff-officers—chaplain, adjutant, quartermaster, and surgeon. It may be observed that in the navy the various Cs. are a sort of warrant signed by the Lords Commissioners of the Admiralty; but the documents are called Cs., and are signed in the name of the king or queen. Under the Cardwell (see CARDWELL, EDWARD, VISCOUNT) reforms civil servants were granted Cs. in certain military depts., e.g. purveyors of the Military Store Dept., and others of a like nature. In course of time these officers passed through the stages of relative rank, honorary rank, and quasi-military ranks such as surgeon-captain. The rank of quartermaster and honorary lieutenant (captain or major) survived until 1918, when the honorary was dropped. An innovation took place in 1927 as regards Cs. by the issue of a 'C' in standardised form for all officers of all branches of the service (with a few exceptions). The forms of C. are three in number: the first gives the king's authority to the holder 'in such manner and on such occasions as may be prescribed by Us to exercise and well discipline in arms both the inferior officers and men serving' under the holder; the second refers to chaplains and exhorts the holder 'carefully and diligently to discharge his duty as an officer of the Royal Army Chaplain's Department,' and the third 'gives and grants' the holder 'full power and authority to have, hold, and enjoy' his said honorary rank. The King's Regulations prescribe when the command, given by a first C., is exercisable and over what bodies.

Commission, Parliamentary. Neither House of Parliament can proceed to business at the beginning of a session until the king has, either by himself or by a C. appointed by him (called the Lords Commissioners), declared the causes of summons. This is somewhat formal, of course, because Parliament by no means confines the subsequent meetings of the sessions to discussing the matters mentioned in the Royal Address. As an historical fact, Parliament has proceeded to business without the royal authorisation at all; for in 1788, when Parliament assembled after being prorogued, George III. was mentally incapable, not only of making the speech from the throne, but of appointing any C. to do so for him. The *impasse* was bridged by the lord chancellor (see CHANCELLOR), doubtless acting in pursuance of his character as keeper of the

royal conscience, affixing the great seal to a C. to open Parliament without the authority of the king, but avowedly 'in his Majesty's name.' At the opening of a new Parliament the commissioners also direct the Commons to elect a Speaker, and are the body for signifying the royal assent to the election when made. A message from the Lords Commissioners for the purpose of signifying the royal assent to a Bill 'makes a House,' even if forty members be not present (*see* COUNT OUT). In connection with its inherent jurisdiction in the matter of elections of members, Parliament, upon a petition, alleging corrupt practices to the House of Commons, presented within twenty-one days after the return of the member the validity of whose election is disputed, may appoint a C. under the 15 & 16 Vict. c. 57, to inquire into the facts of the election, provided the petition is followed by the presentation of an address of both Houses for inquiry. Under the Private Legislation Procedure (Scotland) Act, 1899, when an inquiry is directed to be held on a proposed order or group of orders in respect of private Bills, the chairmen of both Houses constitute a C. for the purpose of choosing four members from the panel of commissioners to conduct such inquiry. When completed, these commissioners make their report to the secretary for Scotland. *See* May, *Parliamentary Practice*.

Commission, Permanent and Special. Cs. are occasionally set up for special purposes which may ultimately necessitate permanent session; as in the cases of the Charity C., 1853, the Civil Service C., 1855, and the Railway and Canal C., 1873. The Cs. of this nature which are at present (1947) in existence include the Charity C., constituted under an Act of 1853 for the better administration of charitable trusts in England and Wales; Civil Service C.; Coal C., constituted under the Coal Act 1938 (*see* COAL MINES, NATIONALISATION OF); Development C., appointed under the Development and Road Improvement Fund Acts 1909-10, for the development of agriculture and rural industries, reclamation and drainage of land, harbours, and fisheries; Royal Fine Art C., appointed in 1921 (and extended by royal warrant of 1933) to inquire into such questions of public amenity or of artistic importance as may be referred to them by any State Dept.; Forestry C., appointed under the Forestry Acts 1919-45 and charged with the general duty of promoting the interests of forestry; Historical Manuscripts C., authorised under a C. issued in 1869 and renewed in 1919, to inquire into the location of MSS. of general public interest with a view to their publication; standing C. on Museums and Galleries appointed in 1931 to advise generally on questions relevant to the development of the national institutions as a whole; Royal C., for the exhibition of 1851, which promotes scientific and artistic education through funds derived from its Kensington estate purchased with surplus moneys of the exhibition of 1851; Railway and Canal C.;

Tithe Redemption C., constituted by an Act of 1936; Imperial War Graves C. (*see* GRAVES, SOLDIERS); War Damage C., appointed in 1941 to administer the War Damage Acts 1941-43; War Works C., appointed to adjudicate on disputes arising out of the Requisitioned Land and War Works Act of June 1945; and the Wheat C. (*see* under AGRICULTURE). All the foregoing are, in effect, Gov. depts. of a permanent or quasi-permanent character. Other Cs., again, may be set up to meet an exceptional but temporary state of affairs as, for example, the C. appointed when King George V. visited India, to perform certain of the royal duties in his absence. Judicial Cs., too, have been appointed for unusual cases where the ordinary legal procedure has been inadequate, as, for example, when two high court judges were appointed to inquire into the Sheffield Trades Union action of 1867; and again, when three judges heard evidence on the charges made against Parnell by *The Times* in 1889. Similarly under the Tribunals of Inquiry (Evidence) Act, 1921, tribunals were appointed under a high court judge to ascertain the facts in the wreck of H.M.S. *Thetis*; in the case of alleged disclosure of Budget secrets by Mr. J. H. Thomas (*q.v.*) in 1936; and in 1949 under Mr. Justice Lysney to inquire into the rumours of corrupt conduct of public servants.

Commission, Royal. A R. C. is a body constituted by royal warrant to conduct an inquiry for the purpose of gaining information either as to the operation of existing laws, or on various matters, social, educational, or otherwise. The warrant or reference, expressly defines the particular objects of inquiry, and outside such objects the C. may not go. Instances of such R. Cs. may be furnished to almost any number; *inter alia* may be mentioned various Cs. to inquire into the factory system, especially in regard to child labour (*see* FACTORY AND WORKSHOP ACTS), and the Poor Law C. at the beginning of the present century to inquire into the whole of the existing Poor Law system. Commissioners are not paid for their services, although compensation may be allowed for time and labour in cases where a high degree of professional skill is necessary. Parliament provides annually for the expenses of R. Cs. When an inquiry is completed, the C. signs and presents its report to the Crown through the home secretary. If the commissioners are not unanimous, those in the minority may record their dissent, expressing their personal views in separately signed memoranda, as, for example, in the case of the Minority Report of the R. C. on the Poor Law system. A R. C. has no power to compel disclosure of documents nor even to administer an oath or compel persons to give evidence. There is no settled practice as to whether, when counsel appear before a C., they are entitled to cross-examine such witnesses as do volunteer to give evidence. The procedure adopted before the Evicted Tenants (Ireland) C. in 1892 was to

allow questions to be put only through the commissioners themselves; and in the Featherstone Riots inquiry in 1893, Lord Justice Bowen, who presided, followed the same procedure. Much criticism has often been directed to the supposed uselessness of Cs., but although often unproductive of practical results in the shape of legislation, it must be conceded that on numerous other occasions, the greatest good has followed. as, for example, in the case of the Royal W. India C. of 1939 whose recommendations (despite the fact that pub. of its report was suspended during the war) had a direct influence on the passing of the Colonial Development and Welfare Act of 1940.

Commission, Secret. With the object of preventing the bribery of agents, employees, or servants of any kind, especially by the payment of money by way of commission, without the knowledge of the agent's or employee's principal or employer, the legislature in 1906 passed the Prevention of Corruption Act, which punishes as a misdemeanour with imprisonment for a term not exceeding two years with or without hard labour, or to a fine of £500, or to both; or, *summarily*, with four months' imprisonment or a fine of £50, or both: (1) the corrupt acceptance or obtaining by an agent either for himself or for any other person, *e.g.* his wife or child, any gift or valuable consideration of any kind as an inducement or reward for doing or forbearing to do any act in relation to his principal's affairs or business, and (2) the corrupt giving or agreeing to give anything to an agent as an inducement to act in such a way. 'Agent' includes employees of all kinds. The passing of the Act was generally regarded as a necessity in view of the ever-increasing corruptibility of persons in large business houses entrusted with the power to contract for the supply or purchase of considerable quantities of goods, and of various other persons, such as the servants of local authorities, who could not be reached by the criminal law as it stood prior to 1906. The gist of the offence is the paying or receiving *corruptly*, it being no offence in itself either to reward an agent or for an agent to accept a reward. Prosecutions under the Act may only be instituted by leave of the attorney-general.

Commissionaires, Corps of. This useful body was founded in 1859 by Capt. Sir Edward Walter, K.C.B. At its inception it was composed exclusively of a few wounded soldiers, the founder's idea being to make the association a means of obtaining some form of employment for wounded soldiers of good character. The corps soon developed into a large institution, and its membership, which comprises pensioned soldiers, sailors, and airmen, is about 5000; and there are branch institutions of the corps in Birmingham, Bristol, Leeds, Liverpool, Manchester, and Newcastle-on-Tyne; Edinburgh and Glasgow; and Belfast. The headquarters are at Exchange Court, 419A Strand, London. The men wear a

distinctive uniform, and are generally engaged in light duties of a temporary or permanent character.

Commissioners, Ecclesiastical, *see* ECCLESIASTICAL COMMISSIONERS.

Commissioners, Lords, *see* ASSENT, ROYAL.

Commissioners, Naval, *see* ADMIRALTY.

Commissioner of Police, official in whom is vested the highest administrative authority in the police force of Great Britain. This official is assisted by a deputy commissioner, three assistant commissioners, three deputy assistant commissioners, and five chief constables. The City of London has its separate police estab., under a commissioner and assistant commissioner; the force numbers about 1200 men.

Commitment, warrant or order of a court of justice of the peace directing a sheriff, bailiff, or constable to take a named person to the common jail, whether on remand or to await trial. If the arrested person is already in jail, the C. directs the governor to detain the person named for a specified period, and either to produce him or discharge him on the expiration of such period. Apprehension without a warrant is not C. in the proper sense. The Habeas Corpus Act, 1679, provided that a jailer was not justified in receiving a prisoner unless the C. was in writing. A C. must state the offence for which the prisoner is detained.

Committee of Imperial Defence, originated in 1890 as a select combination of civil and professional advisers on naval and military matters, formed with the object of securing a greater degree of efficiency of preparation for political contingencies and for joint action in time of war. At its inception it was a naval and military council whose prin. function was to consider the estimates with a view to determining the relative importance of the respective demands of the two services. During the First World War it was regularly presided over by the Prime Minister, while the members included the war secretary, the first lord of the Admiralty, the head of the Army General Staff, the First Sea Lord, and heads of the Army and Navy Intelligence Dept. The C. of I. D. was subsequently concerned primarily with questions of imperial defence and only secondarily with the estimates. The Prime Minister continued to be the chairman and the secretaries of state of the service depts., the dominions, Colonial and Foreign Offices, and other interested ministers were members. Under an arrangement made in 1936 to secure a higher degree of co-ordination between the three fighting services a minister of defence was appointed to act as deputy chairman and to devote his whole time to the duties. The overseas dominions make provision for the defence of their own areas, but the general strategical defence of the empire was undertaken by the imperial gov., through the C. of I. D. which co-ordinated the work of the sea, land, and air forces. One of the most important sub-committees was that of the chiefs of

staff of each of the fighting services, whose function was to draw up plans for defence for submission to the main committee and for the execution of the accepted policy of the committee. (This sub-committee will of course continue to exist, but will report to the minister of defence.) The duties of the C. of I. D. were ancillary to the Cabinet, being in the main advisory and informative. The plenary sittings of the committee took place some six or seven times a year. Ordinarily the committee conducted its business through permanent sub-committees. The C. of I. D. was abolished in 1946 on the creation of a minister of defence. *See further under DEFENCE, MINISTRY OF.*

Committee of Public Safety (*Comité du Salut Public*), body which was co-opted by the members of the Fr. convention in April 1793. The powers entrusted to it were at first merely those of supervising the actions of the executive, but by degrees it usurped all the powers of that body. The revolutionary gov. was conferred on the C. of P. S. by the convention on Dec. 4, 1793. Local committees were instituted in all the coms. to try the suspected persons, and law and order were thereby forth non-existent in France. Robespierre was the leader of the *comité* till his fall in 1794; in Oct. of that year a new constitution introduced a directorial gov.

Committees, Parliamentary. The Standing Orders provide for the appointment of five *standing committees* for the consideration of Bills. The procedure in these C. is the same as in select C., unless the House otherwise orders, and strangers are admitted, except when the committee orders them to withdraw. The standing orders provide that C. may sit during the sitting, and notwithstanding any adjournment of the House on any day on which the House has sat. On a div. being called in the House, the chairman of a standing committee suspends the proceedings of the committee for such time as will in his opinion enable members to vote in the div. A standing committee consists of not less than thirty nor more than fifty members, nominated by the *Committee of Selection*, who have power to discharge members for non-attendance or at their own request. The committee of selection can add not less than ten nor more than thirty-five members to a standing committee in respect of any Bill referred to it, to serve on the committee during the consideration of such Bill. One of the standing C. is appointed for the consideration of all public Bills relating exclusively to Scotland, and consists of all the members for Scottish constituencies, together with not less than ten nor more than fifteen others members nominated by the committee of selection. This last-named committee is composed of eleven members chosen by the House at the beginning of each session, and besides nominating members to standing C. it classifies all private Bills and allocates them to the different standing C. All Bills, other than money Bills, must be referred after second reading to a standing committee

unless the House orders otherwise, when they are referred to a *committee of the whole House*, or to a *select committee* or sometimes to a *joint committee* of the two Houses, consisting of two members from each House. A committee of the whole House is the House itself presided over by a chairman instead of by the Speaker. The time for amending a Bill is when it is in committee, the clauses are discussed in detail, and amendments moved in the order in which they come in the particular clause; after the consideration of new and postponed clauses and schedules the committee reports to the House. But where a Bill has been referred to a select committee it must afterwards go through a committee of the whole House. When the House goes into committee, the Speaker vacates the chair and the chairman of C. takes his place. A Bill may be at once put down for third reading, when it has gone through a committee of the whole House without amendment; but where it comes up from a standing committee it may be again amended on the report stage before being set down for third reading. Money Bills may only be introduced in the House of Commons by authorisation of a resolution in committee of the whole House moved by a minister. The *Committee of Supply* and the *Committee of Ways and Means* are C. of the whole House, formed at the beginning of a session, immediately after the debate on the address is closed. The former committee discusses the naval, civil, military, and air estimates for the ensuing year, and allocates the revenue of the country. The latter committee authorises grants out of the Consolidated Fund (*q.v.*) and votes the necessary taxes for the year. The *Railway and Canal Bills Committee*, consisting of eight or nine members chosen by the committee of selection, performs similar functions to the latter committee with regard to railway and canal Bills. The *Police and Sanitary Committee*, also nominated by the committee of selection, considers Bills dealing with sanitary and police matters. The *Committee of Privileges* deals with matters appertaining to the ancient privileges of the House. The *Committee of Public Accounts*, consisting of eleven members nominated at the commencement of each session, examines public accounts submitted to it by the comptroller and auditors-general. *See CASTING VOTE, CHAIRMAN.*

Commodore, in the royal navy, a temporary rank between that of an admiral and that of a captain. A C. is usually appointed for a squadron of three or more ships detached from the main body on special service. There are two classes of Cs., of which the first hoists his pennant, white with a red cross, at the main, and holds the temporary rank of a rear-admiral. A C. of the second class hoists his pennant at the fore, and has no captain under him in the ship. A C. may not hoist his pennant in the presence of an admiral without permission. The title is often given by courtesy to the senior captain of a squadron of sev. ships. In

the U.S. Navy the title was purely a courtesy one before 1862, applied to captains who commanded a squadron. In 1862 it was made a permanent rank equal to that of brigadier-general in the army, but was abolished in 1899. The title belongs also to the president of a yacht club and to the senior captain of a fleet of merchant vessels.

Commodus, Lucius Aelius Aurelius (180-92), known also as **Marcus Antoninus**, emperor of Rome, son of Marcus Aurelius and Faustina, was b. at Lanuvium in A.D. 161. In spite of a most careful education, he early showed a propensity for low company and debauchery. His later life fulfilled completely the promise thus given. It was spent in dissipation of all kinds, and his lavish expenditure on gladiatorial exhibitions exhausted the treasury. He himself fought as a gladiator in the shows on numerous occasions. At last Marcia, his mistress, and two other members of his household, finding their names on the list of those to be killed, gave C. poison, and he was then strangled by a wrestler named Narcissus.

Common, Right of, right of taking a profit in the land of another in common with others. It may either be such a right as is enjoyed in common with others to the exclusion of the owner of the land, or it may not exclude the owner of the land. The commoner has no interest or estate in the soil of the land on which he has a R. of C. The profits which may be the subjects of common right are the natural produce of land or water, such as grass and herbage, turf, wood, and fish. Hence the four species of 'commonable' rights are called common of *pasture*, the right to pasture one's cattle on a particular piece of land; common of *turbary*, the right to cut turves; common of *piscary*, the right to take fish from a particular piece of water; and common of *estovers*, the right to take wood for fuel, or for agric. implements. Where a person enjoys a R. of C. over land by reason of his title to other land, the common is called a common *appendant*, e.g. freeholders of a manor may have the right to pasture a certain number of beasts on the manorial waste lands. A R. of C. is said to be *appurtenant* when claimed (a) by copyholders; (b) by freeholders of a manor when they claim independently of their freehold interests; (c) by freeholders not of a manor. Copyholders may claim by special custom, while freeholders' rights may depend upon grant or prescription (i.e. title by user). There are various ways of extinguishing Rs. of C. otherwise than by buying the commoner out, e.g. the enfranchisement of copyhold to which a R. of C. is annexed extinguishes the right. The most usual mode of extinguishing Rs. of C. in modern times is by inclosure under Act of Parliament.

Common, Tenancy in, tenants in common are they who own lands or tenements, whether by a freehold or a leasehold title, in common as distinct from joint ownership. The characteristic feature of joint ownership is that each

owner has an equal aliquot share of benefit in the undivided whole; and that, assuming no proceedings for severance, the whole ultimately goes to the survivor.

In T. in C. each is the owner of an undivided share in the whole, the quantum of his proportionate part depending on the terms of the grant or devise. It is solely the fact that the tenants are all interested in the possession of the same property that constitutes them tenants in common; and each one of the tenants in common may derive title from a different instrument, whereas joint tenants derive one and the same title from one and the same instrument. There may be tenants in common of other things besides land, as, e.g., of £5000 consols, or a racehorse. The undivided shares of tenants in common no less than the quantity of their interest or estate may be equal or unequal, e.g. A may have the freehold inheritance of two-thirds of a particular park, while B. may have only a life estate in the remaining one-third. But so long as B's lesser interest exists, A and B are tenants in common. For all the purposes of sale, disposition by will, or transmission of intestacy, the undivided shares of tenants in common are like separate property. Enjoyment must be in common, if possible. If not, the tenants must come to some agreement about the mode of enjoyment, and, if they cannot agree, they must sell the thing and divide the proceeds in the proper proportions. Equity (q.v.) is said to lean against joint tenancies, and the courts endeavour to construe all instruments in such a way as to create tenancies common rather than joint tenancies. A T. in C. ceases when the ownership of the sev. shares subsists in a single individual; it can also be destroyed by means of a partition suit in equity, unless, indeed, the thing be indivisible, when a sale must be effected.

Common Council of London, The, constitutes with the lord mayor and aldermen, the corporation or governing body of the city of London. The members of the C. C. are elected by the various wards in the city, but as far back as the fourteenth century they were elected by the trades, and not by the wards. The expression C. C. was not used in the earlier times, but it is set out in the election lists of 1347 that 'the persons under written were chosen in their respective wards to come to the Guildhall of London, when they should be warned thereto to treat of business touching the city.'

Commoner, term of varying import denoting primarily any person under the rank of a peer. It also means a member of the House of Commons; one who has a title to a right in common (see **COMMON, RIGHT OF**); and, at Oxford or Cambridge, a student of the second rank, i.e. one who is neither a scholar nor an exhibitor of his college.

Common Form. In the great majority of causes of action the material circumstances are such that judgment can generally be entered in C. F., i.e. in accordance with the long-established practice of the courts. In such cases nothing more

is required than to fill in the form of the judgment the names of the parties, the dates, the amount of the damages, etc. From the simplicity of the issues in most common law actions, the C. F.s. of judgment are usually far shorter than in the case of judgments, orders, and decrees (*q.v.*) in equity (*q.v.*) suits. Nevertheless the usage of the Chancery courts has evolved an equally stereotyped set of precedents for use in every conceivable class of case. The term C. F. is not, however, restricted to a form of judgment, but may be regarded as synonymous with precedents in the sense in which that word is used to denote any legal document whatever drafted in accordance with common practice.

Common Good, in Scots law, denotes all the property of a burgh (*q.v.*) held by the corporation for the general good of the community. C. G. may be either alienable for the debts of the burgh, or inalienable. The lands, mills, and fishings of a burgh which are generally leased for periods customary in the dist., and houses, which are ordinarily let for a year, are alienable. Public lands and buildings, *e.g.* churches, tolls, market places, and common greens, and other property dedicated by grant, Act of Parliament, or otherwise to the special use of the burgh are inalienable. Inquiries have been instituted from time to time ever since 1662 into the mismanagement and maladministration of C. G., the object of the auct. grant of which was to enable the burghs to meet the Crown burdens and to discharge their local and municipal duties. These inquiries were productive of but little result, but in 1822 Sir Wm. Rae's Act was passed to regularise the administration of the affairs of burghs royal, and under the Town Councils Act, 1900, the local body must make out a yearly account of the C. G. and the revenue arising therefrom.

Common Law, a term of varying import. the different senses or rather shades of meaning of which are to be gathered by contrast with a number of opposed terms. Broadly speaking, the C. L. of England is the universal law of the realm, the fundamental principles of which, based on general customs, have existed from time immemorial, while their subsequent development to meet every new combination of circumstances has been the peculiar province of judicial interpretation acting avowedly on estab. precedent. In this broader sense C. L. as opposed to *lex scripta*, the written or statute law, is styled *lex non scripta*, or the unwritten law of the kingdom. Blackstone includes in the *lex non scripta* not only *general customs*, but also the particular customs of certain parts of the kingdom and such particular laws as are by custom observed only in certain courts and jurisdictions, and explains the description *non scripta* on the ground that the original institution and authority of such parts of our law were not set down in writing, as Acts of Parliament were, but received their binding force by long and immemorial usage and by their universal reception

throughout the kingdom. In thus adhering to the classic distinction, Blackstone points out that those parts of the C. L. which he included in the *leges non scripta* had long since lost their purely oral character, and were to be found in the records of our courts, in books of reports, and in treatises by writers of estab. repute. He accordingly identifies C. L. in its stricter significance with one class only of the 'unwritten' laws, *viz.* *general customs*, which he describes as the laws by which proceedings in the ordinary courts of justice are directed, *e.g.* that the eldest son alone is heir to his ancestor; that a deed is of no validity until delivered. *Particular customs*, as opposed to general, affect only the inhab. of particular dists., *e.g.* the right of the youngest son to inherit by custom of *borough-English* (now abolished). The third branch, *particular laws*, connote the civil or Rom. municipal law, and canon law or Rom. eccles. law compiled from the opinions of Lat. fathers, the decrees of general councils, and papal bulls, which systems have no authority in England other than that they may have received by immemorial usage in certain particular cases. In its narrower or contrasted sense, C. L. or general custom, crystallised by judicial decisions into positive law, is further and pre-eminently opposed to equity (*q.v.*) or that body of rules which savour of the *jus naturale* of Rom. law, and were originally formulated by the chancellor acting as the keeper of the king's conscience, and developed by a long line of chancery judges, for the purpose of mitigating the rigour, formalism, and technicality of the C. L. For centuries equity existed side by side with the C. L. as a body of opposed rules gradually growing as technical in its own way as the C. L., until in the year 1873 the Judicature Act abolished the distinction by enacting that the rules of equity should prevail. But though nominally equity and C. L. are fused, practically the distinction is retained by reason of the fact that certain subjects, *e.g.* trusts, the interpretation of wills, etc., were assigned to the chancery div. of the high court, and, further, from the fact that the king's bench or C. L. courts have provided no machinery for carrying out equitable judgments.

Common Measure, name applied in music to time or rhythm consisting of two or four beats in a bar. It is especially applied to 1-1 time, four crotchets in a bar, as this time is the most common of any.

Common Pleas, Court of, one of the old common law (*q.v.*) courts; before 1881 it existed as a superior court of record, having jurisdiction over England and Wales in all *common pleas*, *i.e.* civil suits between subjects. Like the present king's bench div. and the old court of exchequer, it was an emanation of the *Curia Regis*, or committee of the *Commune Concilium* or Great Council of the Realm of Norman times. The term *common pleas* was used in contradistinction to *pleas of the Crown* or criminal causes. By Magna Charta, Article 17, it was

provided that the court should be held in a fixed place instead of following the king, an enactment which led to the estab. of the C. of C. P. at Westminster Hall. By the end of the thirteenth century it had acquired, like the other common law courts, a separate staff of judges, distinct from the permanent members of the *Curia Regis*. The number of its judges varied considerably from time to time, but at the period prior to its abolition, it was composed of five judges, one of whom was chief justice and the other four puisne justices. Before the passing of

gated to the divisional court. By an Act passed in 1831 it was provided that the judgments of the C. of C. P. could only be reversed by the judges of the king's bench court and the court of exchequer sitting as a court of error in the exchequer chamber, the final appeal being by *writ of error* returnable to the House of Lords. By the Judicature Act, 1873, the C. of C. P. was merged in the C. P. div. of the high court of justice, but was finally transferred to the king's bench div. by an order in council issued in 1881.



OPEN FIELD CULTIVATION

From an old map of Laxton in Nottinghamshire, at present the only surviving unenclosed village in England.

the Real Property Limitation Act, 1833, which abolished all *real* and *mixed* actions except that of *replevin*. It had exclusive jurisdiction in all *real* actions, or actions concerning the freehold title of lands. After 1833 this jurisdiction was restricted to actions of *dower* and *quare impedit*, i.e. actions by a patron against a bishop for refusing to admit and institute to a vacant benefice the clerk nominated by the patron. In *mixed* actions, i.e. those in which a claim for damages was made along with a claim for the specific recovery of some tenement, and in *personal* actions—that is, actions on contract and tort, or civil injury—the C. of C. P. and the two other common law courts of king's bench and exchequer exercised concurrent jurisdiction. It was also constituted a court of appeal from the decisions of revising barristers on disputed franchise claims, a function now dele-

Common Prayer, Book of, see PRAYER, BOOK OF COMMON.

Common Room, apartment in a monastery, corresponding to the C. R. of univs., where dons take their wine after hall. A fire was constantly kept burning for the use of monks, and a master monk presided.

Commons and Enclosures. C. are wastes and pastures which have never been exclusively appropriated by any individual, but used in common by the inhab. of a par. or dist. The effect of maintaining all the cattle of a par. on the C. for a great part of the year was that only so much was kept in meadow as would produce hay to feed the cattle in winter weather, with the result that arable land was not well cultivated, and no one would undertake the responsibility either of draining or clearing the C. of woods or of manuring them. Hence

most of the C. and common fields in Great Britain were divided and enclosed by awards made in pursuance of a series of Inclosure Acts passed during the first forty years of the nineteenth century. Common fields differ from C. in that they are divided for the purpose of cultivation; but as soon as the crop is off the ground, the cattle of the parishioners have the right of pasture over the whole common. As the common-field system is economically unsound, common fields have likewise fallen under the operation of the Inclosure Acts. By the Commons Preservation (or Regulation) Act, 1876, it is a public nuisance to encroach upon any common; and enclosure by the Ministry of Agriculture (replacing the old commissioners) may only take place if shown to be beneficial both to the neighbourhood and to private landowners. Of more recent years there has been a very general reaction against the enclosure of common lands, and a society, the C. Open Spaces, and Footpaths Preservation Society, was formed for the preservation and protection of common land, vii. greens, or open spaces, bridle paths, waste lands, and rights of a v. See ALLOTMENTS. See F. Cannon, *History of the Theories of Production and Distribution in the Political Economy of England from 1776 to 1840*, 1893; E. C. Gomer, *Common Lands and Inclosure*, 1912; H. Bradley, *Enclosures in England, 1400-1900*, 1918.

Common School, see EDUCATION, United States.

Common Sense. Philosophy of, bases all axioms and reasoning on certain fundamental beliefs. Among these conceptions may be named the universality of causality, and the belief in the reality of the material universe apart from the mind of the person perceiving it. These conceptions are all recognised as true by the common sense of mankind. The school is chiefly represented by Thomas Reid and the Scottish school. See J. McCosh, *Scottish Philosophy from Hutcheson to Hamilton*, 1875; A. Seth, *Scottish Moral Philosophy (Philosophical Review, vii)*, 1898; See also BERKELEY, GEORGE.

Common Serjeant, judicial officer of the city of London whose functions are (1) To sit at the Central Criminal Court (q.v.) to aid the recorder in the disposal of criminal cases; (2) to act as a judge of the mayor's court of London for the trial of civil causes; (3) to act as legal adviser or law officer to the city corporation, and to act as counsel in court for the corporation if called upon; and (4) to perform certain duties at elections of the lord mayor, sheriffs, and other corporate officers. The C. S. is next in rank to the recorder. Before 1888 he was elected by the court of Common Council, since then the appointment has been vested in the Crown. The C. S., who must be a duly qualified barrister, is not disqualified from a seat in Parliament. The salary of the C. S. is at present £3000 a year.

Commons, House of, see under PARLIAMENT.

Commonwealth, term generally used as the equivalent of the Lat. *respublica*, of which it is a trans., and in this sense of a form of gov. without a monarchy it is particularly applied to that period of Eng. hist. between the death of Charles I. and the accession of Charles II., from 1649 to 1660. The period is sometimes limited to Cromwell's protectorate, which ended in 1658. C. is also the official designation in U.S.A. for the states of Massachusetts, Pennsylvania, Virginia, and Kentucky. The term C. has in recent years come to replace the term Empire in relation to the self-governing Brit. dominions, and the modern description, Brit. Empire and C. connotes the fact that the Brit. Empire is at the present stage of its evolution, partly an empire centrally controlled (i.e. the colonial dependencies proper), and partly a C. of individually sovereign states (i.e. the sev. dominions). In this context the term finds its concrete expression and authority in a report by a committee on inter-imperial relations, presided over by Lord Balfour, which was unanimously adopted by the imperial conference of 1926. This report, defining the mutual relation of Great Britain and the dominions said: 'They are autonomous communities within the British Empire, equal in status, in no way subordinate one to another in any aspect of their external or domestic affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of nations,' and this definition was subsequently given legislative sanction in the Statute of Westminster (1931). See further BRITISH EMPIRE or BRITISH COMMONWEALTH OF NATIONS; DOMINION STATUS.

Commonwealth of Australia, The, came into existence on Jan. 1, 1901, when the five Australian colonies of Great Britain united with Tasmania in a federal state under this name. See further under AUSTRALIA.

Commune, in feudal times in France, meant a body of burgesses in a tn. which had been granted a charter of incorporation by the king. Subsequently it came to denote any body of persons in a par. or dist. organised for purposes of local gov., and subordinated to the central authority of the state. The C. is now the unit of local governmental administration in France, and is composed of the citizens, a council elected by the C. itself, and a *maire* appointed by the state.

Commune of Paris, 1871, name given to the municipality proclaimed by the insurrectionist element in Paris on March 18, 1871, while the victorious Ger. Army was encamped on the heights outside the city. Some five months after the proclamation, in Sept. 1870, of the Third Republic, the National Assembly, elected after the capitulation of Paris, succeeded to the functions of the provisional Gov. of National Defence. This assembly contained a majority of Monarchists, but not being unanimous on the choice of the monarch, resorted to the temporary expedient of compromising its difficulties by leaving matters in the hands of the

republic. The Assembly hoped by this means to curry popular favour by taking no active part in the imposition of the war indemnity and then afterwards to restore the monarchy at leisure. But the knowledge that the Assembly, with its anti-Republican feelings, was about to disband the National Guard kindled the sparks of disaffection among the revolutionary spirits of the city, with the result that the latter proclaimed a C. in accordance with the traditions of that improved 'town council' formed of 'the clixir and chosen men of Sansculottic patriotism' (Carlyle, *French Revolution*, i. iii. 1.)—the C. of 1792. The consequence of this reassertion of vague democratic polity was that the National Assembly and the garrison troops repaired to Versailles, whence the latter, reinforced by the liberated Fr. soldiers of the Sedan and Metz armies, returned to conduct a second siege of Paris under the eyes of the silent Ger. Army. The Communards, having burnt the palace of the Tuileries, the Hôtel de Ville, and some other public buildings of historic interest, were themselves speedily made the victims of the fury of the Fr. regulars. Four days after the burning of the Tuileries, on May 28, 1871, Paris was taken by storm, some 20,000 to 30,000 men and women having been shot in the streets of the city, the C. was deposed, and a number of its chiefs executed or transported. After the liquidation of the war indemnity, the Third Republic reasserted itself, notwithstanding the excesses of the C., and with increased support at the ensuing by-elections established itself as the most enduring form of constitution France had known for a century. There is but little theoretical relationship between the C. of P., 1871, and that of the Fr. Revolution. The latter was the spontaneous expression of the hatred of the Parisian populace for the Fr. aristocracy. The Girondists, having fanned the flame of revolt against the tyranny of the privileged classes, were utterly unable to destroy the race of giants to which they had given birth, and Paris fell under the Reign of Terror, fomented by the triumvirate of Robespierre, Marat, and Danton. But the C. of 1871 was an insurrection motivated by a desire for local or self-gov. for Paris, and the democratic expression, loose and incoherent though it might be, of dislike for the prevalent centralisation (*q.v.*). The point of contact, however, between the two Cs. is that they were essentially the instruments of the mob; but while the earlier Communards based their pretensions on no sounder theories than the doctrine of an original social compact and the moral superiority of the state of nature promulgated by Rousseau, and ended by nothing clearer than a frenzied cry for equality, liberty, and fraternity, the intellectual chiefs of the later C. displayed strong socialistic views, which, even if theoretically vague, nevertheless contained in them a clear expression of revolt against economic oppression by the moneyed classes. The best hist. out of many is Edmond Lepelletier's *Histoire*

de la Commune, 1911. See also P. Lissagaray, *Histoire de la Commune de 1871* (Eng. trans. by E. B. Aveling), 1886; Karl Marx, *The Civil War in France, 1848-1850*, 1871; E. Belfort Bax, V. Dave, and W. Morris, *A Short Account of the Commune of Paris*, 1886.

Communications, see AIR MAIL; AIRWAYS, BRITISH; AVIATION, CIVIL; BROADCASTING; CANAL; RAILWAYS; SHIPPING ROUTES; TELEGRAPHY; TELEPHONY, etc., and under *Communications* in the general articles on countries.

Communion (Lat. *communio*, participation), the participation in the sacrament of the Lord's Supper. Since only those holding the faith of the Church were admitted to this rite, the word C. became applied to the relation of those who are united by belief in the tenets of any particular religious body or church. Hence, we speak of the Rom. C., the Anglican C., and the Lutheran C. C. in both kinds is a theological term signifying that in the celebration of the Lord's Supper communicants receive the sacrament under both the species of bread and wine. This method was undoubtedly the general practice of the primitive Church, but in the early Middle Ages the custom of withdrawing the cup from the laity gained ground. The Council of Trent in 1563 made this practice binding on the Rom. Church, which body alone retains the custom of C. in one kind.

Communism, in its limited application, means the common management of industry and the sharing of its fruits. We have the common management of parks, schools, public pleasure grounds, etc., and practical C. in water which is supplied free to the poorest inhab. of our cities. Then there is a C. in the case of commodities which are cheap. As a social theory, C. finds but few adherents either in Great Britain or in the U.S.A., but the movement has certainly gathered many adherents since the Second World War in France, Italy, and Yugoslavia, though some allowance must be made for the influence of Russia over countries of E. Europe. Again, the Communist followers of Thaelmann in pre-Nazi Germany were a numerous body and polled many votes, but were ultimately disrupted by Hitler (*see* next article). In early times, property was held in common, and individual ownership arose out of C. Many religious orders both taught and practised C. during the Middle Ages. Sir Thomas More's *Utopia* is the first exposition of C., and was intended to be a picture of ideal society. Saint-Simon and Fourier are also generally considered to be Communists, though their systems do not demand absolute equality. Perhaps the best example is Cabet's *Voyage en Icarie*, pub. in France in 1842, and his proposals led to the practical result of communistic settlements being estab. in various places in the U.S.A. New interest was aroused in C. by the estab. of the Soviet system in Russia following the revolution of 1917. Opinions differed widely on the question whether C. or Socialism was the foundation of this movement; but as Socialism

is a distinct party name in many countries indicative of parties which have undertaken the responsibilities of office, it is commonly agreed that the Russian movement required a word of rather more extreme connotation. The C. of Russia aimed at much more than the socialisation of wealth, for it seized the means of wealth-production. In the deliberate and avowed policy of the leaders of the movement some startling and paradoxical methods were upheld. It was contended that revolution must precede good order, and that a dictatorship was essential in order to procure national equality. The milder Fabian notions of gradual change were openly repudiated and the necessity of tearing down existing systems, at no matter how great an immediate cost, before new ones could be devised, was proclaimed. Russian C., successful at all events in revolution and in the estab. of a dictatorship, proceeded along the two definite lines of education and propaganda in order to estab. its future; but even the vigorous prosecution of these methods did not lessen the apparent need for ever-increasing powers of dictatorship. C. in Britain and other countries is a title frequently adopted by politicians for whom the prevailing Socialist teachings are not sufficiently forceful. During the 1919 general election in Great Britain, candidates adopting this description first stood for election in sev. constituencies. But the movement as a whole gained few adherents. Since then it has made little headway, the common opinion being that it is a movement subsidised by Moscow. 'I believe,' wrote Mr. Attlee, 'that the people of this country are as unlikely to accept Communism as Fascism. Both systems appeal to the politically immature. Both are distasteful to peoples like the British and French, who have had years of experience or personal freedom and political democracy' (*The Labour Party in Perspective*, 1927). This opinion of the present Prime Minister would seem to have been justified, for in the 1945 general election the Communist party had only twenty-one candidates, of whom only two were elected. But in the London municipal elections Communists won nine seats from Labour and three from Municipal Reformers. See J. S. Mill, *Principles of Political Economy*, 1848; K. Marx, *Das Kapital*, 1867-85; P. Lafargue, *The Evolution of Property*, 1918; E. and C. Paul, *Creative Revolution*, 1920; J. V. Stalin, *Marrism and the National and Colonial Question* (trans.), 1936; S. and B. Webb, *Soviet Communism: a New Civilisation*, 1941.

Communist Party. The C. P. of Great Britain (C.P.G.B.) was founded in 1920 to propagate the principles of Communism (q.v.), many of its founder members having belonged to Socialist bodies, particularly to the Social-Democratic Federation. At the present time no success has attended the party, and until 1945 it had but one member in the House of Commons, in which year one other was elected. The party is affiliated to the Comintern (previously the Third Inter-

national), whose seat is in Moscow. The Brit. Labour party forms part of the Labour and Socialist International, which is in line of succession of the old Second International, and is supported by most of the democratic parties in Europe, and by some in other continents. Unlike the Third International, which is the creation of the Communists of Soviet Russia, and is dominated by them, the Labour and Socialist International cannot give orders to its affiliated organisations. In Germany the C. P. in the four Reichstag elections of 1930-32 polled between five and six million votes; but, after these successes they were gradually overwhelmed by the Nazis; their leader, Thaelmann, was fung into jail, and repressive measures were taken against the party as a whole. Even the notorious Reichstag-building fire of 1933 was laid, though without evidence, at the door of the C. P.—this indeed being one of the earliest incidents of the Nazi revolution. Similarly, in Austria, the gov. decided to dissolve the C. P. on account of its subversive propaganda. The C. P. played only a minor role in the Sp. revolution, the Sp. Communists affiliated to the Third International comprising a negligible minority, the more influential left-wing party in that country being identified with the *Sindicate Union*, an independent Labour organisation. Late in the Civil war (March 1939) there was a determined Communist revolt in Madrid, but it was crushed by the Republicans in a few days, and attempted uprisings in Valencia, Almeria, and other prov. centres were similarly overcome. In Great Britain in 1933 the C. P. agreed with the Independent Labour party that a 'united front' should be presented by the two parties against Capitalism and Fascism. They approached the Labour party and the T.U.C. in the hope of securing their co-operation, but signally failed. There was a large C. P. in Czechoslovakia up to about 1938, but, with the Ger. threat to the Sudetenland, its influence rapidly waned, and with the Ger. invasion of the whole country, it was driven underground. The outbreak of the Second World War saw the rapid decline of the C. P. in most countries whose sympathies were with the cause of the W. democracies, and the policy of Stalin towards the Poles and Finns hardened world opinion against them everywhere, notably in Italy (see also ANTI-COMINTERN FACTS). With the close of Second World War in 1945, however, the C. Ps. undoubtedly made their influence felt in many countries in Europe, largely owing to the rise in the cost of living (see further under COMINTERN). Again, the revolt in the Dutch E. Indies was largely organised by Communists (see INDONESIA). But perhaps their most striking advance is in China, where during 1946-49 a successful civil war was waged between their forces and the forces of Chiang Kai-shek (see further under CHINA).

Community Foundations, or Trusts exist in the U.S.A. for the administration of charitable funds. These funds are the

accumulation of grants from private donors, and for the majority of C. F. banks act as trustees. The first C. F. was founded in 1914 under the auspices of the Cleveland Trust Company, and was called the Cleveland Foundation. There are now about sixty C. F., and each is especially concerned with the welfare of the town in which it exists. The largest C. F. are in Cleveland, Chicago, Boston, Indianapolis, and New York. The New York Community Trust was founded in 1923, and now distributes funds to the extent of \$120,000 a year from a capital of \$6,000,000.

Community Singing. Modern C. S. began in America about 1914, and has since spread to England. Sing-songs take place indoors or outdoors, and are even arranged for the lunch hour. The community may be small or large, sometimes hundreds of people, and there should be a leader to lead the songs and conduct. In C. S. on a large scale the leader's voice is often broadcast and a band may accompany the singers. Programmes consist of folk-songs, modern popular songs, negro spirituals, marching songs, and carols. Easter carolling and Christmas carolling have also been revived.

Commutator, in electrical technology, is a machine the function of which is to rectify the alternating voltage induced in the armature conductors. It is a cylindrical structure built up of segments of high-conductivity, hard-drawn copper, insulated from one another by mica.

Comnena, Anna, see ANNA COMNENA.

Comnenus, see ALEXIUS COMNENUS.

Como. 1. Prov. of N. Italy, part of Lombardy, to the S. of the Alps. It is a beautiful region, including within its bounds many of the most beautiful Italian lakes. It is no less fertile than beautiful, producing wine, corn, silk, olives, and fruit. Its manufactures of silk, cotton, iron, glass, paper are not so important. Area, 690 sq. m. Pop. 488,000. 2. City and episcopal see of Lombardy, cap. of the prov. of C. It is situated at the S.W. end of Lake Como, 30 m. N.W. of Milan by rail, and is beautifully situated in a valley enclosed by hills which are clad with luxuriant gardens and plantations of olives and oranges. The city contains some important buildings, first among which may be named the cathedral, commenced in 1396, which has been somewhat spoiled by eighteenth-century baroque additions. The greater part of the building was erected in the fifteenth century by the architect Rodari, and contains some fine sculpture by him. The public hall, known as Il Broletto, a large arcaded structure in black and white marble dates from 1215. Other important architectural monuments are the churches of S. Abbondio (Romanesque eleventh century), S. Fidele (Romanesque twelfth century), and the ruined castle of Baradello. The city museum is contained in the Palazzo Giovinio. C. is a celebrated tourist resort, and its commerce in silk, cotton, etc., is very important. Historically the city is known as the bp. of both the elder and the

younger Pliny, of Cæcilius Statius (some say Milan), the second-century comic poet, of the physicist, Volta, and of sev. popes. In 1127 it was entirely destroyed by the Milanese, but was rebuilt thirty years later by the Emperor Frederick I., as a headquarters of the Ghibelline faction. After frequent wars with Milan, it fell into the hands of the Visconti in 1335, and shared thenceforth the fortunes of that city. Pop. 52,000.

Como, Lake, It. lake 25 m. N. of Milan. Area 55½ sq. m., 43 m. from end to end. The surrounding country is very beautiful. The lake lies at the foot of the Bernese Alps. It is chiefly formed by the R. Adda, which enters it at its N.E. and issues at its S.E. extremity.

Comorin, Cape, most southerly point of India. It is low and sandy, and not visible from vessels at a distance of more than 16 m.

Comoro Islands, group of is. belonging to Franco, situated in the Indian Ocean, midway between Madagascar and the African continent. There are four chief is., viz. Great C. (or Angazlia), Anjouan (or Johanna), Mayotte, and Moheli (or Mohilla), and the whole archipelago is a colony attached to the gov. of Madagascar. The is. are of volcanic origin, and are extremely mountainous, but the soil is fertile. The largest and most westerly is the Great C., about 35 m. long and 12 m. wide. Its highest point, Mt. Kartola, is 8500 ft., and the N. part of the is. consists of a plateau some 2000 ft. above the sea. Next in size is Johanna, 30 m. long and 20 m. at its greatest breadth. Here the land rises to a central peak, 5000 ft. high. Mayotte is 21 m. long, and Moheli 15 m. long. The Fr. headquarters are at Zaudzi, a small is. off the coast of Mayotte. The fertile soil produces rice, maize, sugarcane, cotton, coffee, and all tropical fruits, while turtles are caught abundantly in the neighbourhood and form an article of export. The cultivation of vanilla has been much extended in recent years. Sugar cultivation has declined and there are now only two sugar works and two rum distilleries. The is. were first visited by Europeans in the sixteenth century, and the is. of Mayotte was ceded to France in 1841. The others became Fr. in 1886. Brit. forces occupied Mayotte on July 2, 1942. Great C., Moheli, Anjouan, and a number of smaller is. have an area of 650 sq. m. and a pop. (1936) of 111,000; the combined pop. in 1936 was nearly 129,000. The people are mostly Kaffir, Arab, and Malagasy.

Compagnie Générale Transatlantique, or French Line, most important of the Fr. shipping companies which for nearly a century has been an essential factor in the economic life of its homeland. It was incorporated in Feb. 1855 as the Compagnie Générale Maritime, but its name was changed in 1861 to the present title. Before the Second World War it ensured Franco's commerce with the countries bordering the Caribbean and the coast of N. Africa; its ships fetched and transported cargoes from the E. and W. coasts of S. America and the great ports

of the Amer. Pacific coast, and it held a leading position on the N. Atlantic, a fine fleet maintaining a frequent service between Le Havre, Southampton, and New York. Serious losses were sustained in the Second World War—two-thirds of Fr. Line tonnage was lost, and amongst these losses were many of the major ships of the line. Of the N. Atlantic liners only the *Île de France* and *De Grasse* remained. The latter returned to the run after the war and maintained the service until the *Île de France*, reconverted after a trooping career, returned early in

matters, especially as to apprenticeship, good production, etc. Their power gradually fell into the hands of the wealthiest members, and passed away from the trade altogether, and now they have little or no connection with the trade to which their name attaches, except so far as their educational funds are devoted to special or technical education. Many of the C. are possessed of great wealth, and large sums are held in trust for specific charities, etc. The twelve greater C., with their total income, in order of civic precedence are here given:



THE HALL OF THE MERCERS' COMPANY

This hall and the company's chapel were destroyed by bombing on May 10, 1940.

1949. The Fr. Line also has the former Norddeutscher Lloyd *Europa* (renamed *Liberté*) which joined the *De Grasse* and *Île de France* later in 1949.

Companies, City (i.e. of the city of London), also known as Livery Companies, name given to certain societies or corporate bodies existing in the city of London. These C. began in the Middle Ages, and are a survival of the industrial and municipal system of trade organisations known as guilds or gilds. In the reign of Henry II. (1212) the C. of the Goldsmiths and that of the Pepperers, later incorporated with the Grocers, are mentioned, and also 'Guildhall.' Edward III. was a member of the Linen Armourers and Merchant Taylors, a signal instance of royal favour. The name of 'Livery' comes from the distinctive costume or livery that the members of the C. wore. Originally they were genuine corporations of the members of the particular trade, and had important and valuable functions in regulating trade

Mercers', £111,000; Grocers', £38,000; Drapers', £78,000; Fishmongers', £50,228; Goldsmiths', £58,000; Skinners', £66,700; Merchant Taylors', £50,000; Haberdashers', £57,000; Salters', £22,000; Ironmongers', £26,000; Vintners', £18,600; Clothworkers', £84,600. These C. had halls of their own in the city; the anct. halls having for the most part suffered in the Great Fire of 1666, the existing halls were fine and comparatively modern, but of thirty-four standing at the beginning of the Second World War, only three were undamaged at its end—the Apothecaries', the Ironmongers', and the Vintners'. Many C. possess fine old plate, pictures, and other valuable artistic property. There are sixty-four other C. still in existence, their incomes varying very much. The names of some of them, such as the Loriners', the Girdlers', the Fletchers', are interesting survivals of old trades. The lord mayor, sheriffs, city chamberlain, and other corporation officers are elected by the

liverymen of the C. C., as freemen of the city, a right that has been left them, though many of their former privileges have been taken away. The C. are ruled by the court of the master and wardens, chosen from the liverymen who are recruited from the third class or freemen of the company. In 1880 a royal commission inquired into the Livery Cs. and their finances. The report (1884) contains much information. They are large supporters of charities and educational establs. — Tonbridge School, by the 'Skinners' Company; St. Paul's, by the 'Mercers'; Merchant Taylors', by that company being the chief. See W. C. Hazlitt, *The Livery Companies*, 1892; P. H. Ditchfield, *The City Companies*, 1904; G. Unwin, *The Gilds and Companies of London*, 1908; W. Kent, *An Encyclopedia of London*, 1937.

Company and Company Law. In the sense of commercial organisations, the term C. at the present day comprises two kinds of associations, differing not so much in essentials as in the manner of formation and degree of external control. These kinds are: (a) Statutory or public Cs. formed under a private or special Act of Parliament for the purpose of carrying on some undertaking of a public nature, e.g. railway, gasworks, and waterworks Cs. These Cs. are regulated by the Companies Clauses Acts, 1845-69, the provisions of which, based on those usually provisions of which, based on those usually to be found in the earlier special Acts, constitute a code of practically universal application: (b) Trading Cs. incorporated by charter or under the Companies (Consolidation) Act, 1929. Of these the latter are by far the more numerous. The former (on which see CHARTERED COMPANIES) are now but rarely launched, and exist chiefly to exploit new regions abroad. Even when the Crown did grant more charters, however, such Cs. had many drawbacks, prin. among which was that the members were not responsible for the corporate debts. Hence the introduction of the common-law C., or precursor of the modern joint-stock C. These earlier joint-stock Cs. differed from the modern in that they were unincorporated and the liability of the members was unlimited. In 1855 Parliament passed an Act legalising the principle of limited liability. This limitation of liability, coupled with the advantage of trading on a co-operative system so as to eliminate the waste involved in individual effort and small capital outlay, led to an ever-increasing number of Cs. being formed, until now the returns of the registrar of joint-stock Cs. show a registration of something over 5000 new Cs. every year. The Companies Act, 1929, which operated as from Nov. 1, 1929, repeals previous consolidating Companies Acts, 1908 and 1923, in addition to sev. other statutes. The Act applies to limited Cs., Cs. limited by guarantee, or Cs. other than limited Cs. as if they had been formed and registered under the Act. Nothing in the Act except such provisions as relate

expressly to Cs. registered or incorporated in N. Ireland.

The chief provisions of the Act are: **Incorporation of C.** Any seven or more persons or, where the C. to be formed will be a private C., any two or more persons, may by subscribing their names to a memorandum of association, and otherwise complying with the Act in respect of registration, form an incorporated C. with or without liability. Such a C. may be (1) A C. having its members' liability limited by the memorandum to the amount, if any, unpaid on the shares respectively held by the members (a C. limited by shares). (2) A C. having its members' liability limited to such amount as the members respectively guarantee to contribute to the C.'s assets in case of a winding-up (a C. limited by guarantee). (3) A C. not having any limit to the liability of its members (an unlimited C.).

Share Capital and Debentures.—A prospectus issued by or on behalf of a C. or in relation to an intended C. shall be dated, and a copy, signed by every director or proposed director named therein (or by his agent authorised in writing), shall be registered with the Registrar of Cs. on or before the date of pub., and no prospectus shall be issued until it is so registered. A C. may not, since the Act of 1929, follow the practice, widely adopted before the Act of publishing a synopsis of its prospectus with a form of application for shares; and any form of application must be accompanied by a full prospectus complying with the requirements of the Act (except in connection with a bona fide invitation to a person to enter into an underwriting agreement or in relation to shares or debentures not offered to the public.)

No allotment shall be made of shares offered to the public for subscription unless the amount stated in the prospectus as the minimum amount which in the opinion of the directors must be raised has been subscribed and the sum payable on application received by the C. The amount payable on application on each share shall not be less than 5 per cent of the nominal value of the share. If the aforesaid conditions have not been complied with on the expiration of forty days after the first issue of the prospectus, all money received from applicants for shares must be repaid forthwith to the applicants without interest. Although theoretically shares could not be issued at a discount, in fact that was constantly done, before the Act, by means of payment of commissions. The Act of 1929 makes it incumbent upon a C. to disclose any commissions agreed to be paid in the prospectus or in the particulars in lieu of prospectus and the number of shares which persons have agreed for a commission to subscribe absolutely must also be disclosed.

The Act of 1929 embodied the findings of the Greene Committee's Report of 1926. The committee were of opinion that C. legislation should be an elastic

system giving free play to honest business but hindering the activities of dishonest promoters.

Steps in the Formation.—These comprise the preparation of the memorandum of association, the articles of association, the preliminary contracts (if any), and registration. Any seven or more persons, by subscribing their names to a memorandum of association and contributing at least one share each, may on registering the memorandum with the register of joint-stock Cs. form an incorporated C. It is, of course, not obligatory on individuals associated for the purpose of trade to form a C.; but large partnerships, as distinct from Cs., are forbidden in certain cases: ten or more persons associated for the purpose of carrying on the business of banking, and twenty or more for the purpose of carrying on any other business, must register themselves as a C. The memorandum of association provided for in the Act must contain: (1) The name of the C., with limited as the last word in its name; (2) the part of the United Kingdom in which the registered office is to be situate; (3) the objects of the C.; (4) a statement that the liability of the members is limited; and (5) the amount of share capital with which the C. proposes to be registered, and the manner of div. of the capital into shares. No C. may be registered by a name which contains the words chamber of commerce unless the C. is a C. which is to be registered under a licence and without the addition of the word limited, this being allowed in the case of charitable and certain other Cs. (Section 18 of the Act). Again, except with the consent of the Board of Trade, no C. may be registered by a name which contains the words royal or imperial or is calculated to suggest royal patronage; nor one which contains the words municipal or chartered, or is calculated to suggest connection with any municipality or other local authority or with any society incorporated by royal charter; nor one which contains the word co-operative. The powers of a C. depend entirely on the memorandum of association, and there can be no ratification by the shareholders of any act done by the directors which is *ultra vires*, i.e. not within the scope of the memorandum. A memorandum can generally only be changed by leave of the court. The capital clause states the amount of the nominal capital of the C., together with the number and amount of the shares. The subscribers must pay for their shares, sign the articles of association (see below), and either appoint the first directors or act as directors themselves until such appointment. On compliance with these requisites, the memorandum of association and the articles of association, properly signed and attested, and each bearing a ten-shilling deed stamp and five-shilling registration stamp, may be taken to the registrar, together with a statutory declaration by the solicitor of the C., or by a person named in the articles as a director or secretary, that the various requirements

of the Act as to registration have been complied with. On payment of the *ad valorem* stamp duty on the amount of the capital, the registrar issues a certificate of incorporation certifying that the C. is incorporated under the Act.

Articles of Association.—These form a binding contract between all the members or shareholders and the C. The matters provided for in the articles include, among others, the mode of div. of the profits and losses, calls, transfer and transmission of shares, conversion of shares into stock, increase or reduction of capital, borrowing powers, qualification of directors, meetings, powers of directors, auditing of the accounts, and the winding up of the C. Where no articles are registered the Act provides that the model articles given in Table A in the first schedule to the Act shall apply. When registered the articles bind the C. and the members thereof to the same extent as if they had been signed and sealed by each member, and contained covenants (*q.v.*) on the part of each member to observe them. The articles may amplify the memorandum but may not contain anything contrary to its tenor. The articles may be altered without recourse to the court. Alterations in both the memorandum and the articles of association are effected by special resolution. The court will not confirm alterations in the memorandum designed to enable the C. to acquire entirely new powers except on special terms; and as a rule the court only confirms such alterations as are intended to enable the C. to carry on its business more economically, as, for example, by reducing its capital, or to enlarge the area of its operations. Changes in the articles must not go outside the powers given by the memorandum. The articles may not deprive a shareholder of his right to present a petition for winding up the C.

The Promoter.—The promoter is the person who is responsible for the C.'s existence as such. The typical promoter starts the scheme of forming the C., negotiates with the vendors (if any), gets together the board of directors, retains brokers, bankers, and solicitors for the C., has the memorandum and articles of association prepared, provides the registration fees, drafts the prospectus, pays for the expense of issuing it, etc.; in a word, undertakes to form a C. with reference to a given project and to set it going and to take the necessary steps to accomplish that purpose. A promoter stands in a fiduciary relation to shareholders and subscribers, and therefore may not make any secret profit out of the flotation, whether he is selling his own property to a syndicate or himself forming a syndicate with other promoters to purchase property for the purpose of reselling it at an enhanced figure to some other syndicate. Intending shareholders should be careful to ascertain what the vendors paid for the property or concern the exploitation of which is to be the substratum of the C., for unless the true purchase price is disclosed and the profit on resale accruing

to the vendors, the shareholders will never know what liabilities the C. is under in regard to its preliminary contracts. For this reason he should beware of the 'waiver' clause in the prospectus which is mainly designed to put him off inquiry. Section 81 of the Act is aimed at making it impossible for promoters to arrange for charges being created before the C. is registered and thereby avoid the necessity for registration of charges which affect the property of the C. no less than would have been the case if the charges had been created by the C. itself. The promoter or promoters are liable (together with directors and others) to pay compensation to all persons who subscribe for shares or debentures on the faith of the prospectus for the loss or damage such persons may have sustained by reason of any untrue statement in the prospectus. Promoter in this context does not include any person acting in a professional capacity for persons engaged in procuring the formation of the C.

Prospectus.—This is generally a circular sent round by the promoters or directors after the registration of the C., and its primary object is to induce the public to take up the shares in the C. It is a document in regard to which the legislature and the law courts have ever enjoined the necessity of the fullest and strictest disclosure. Any untrue statements, whether fraudulent or innocent, will, if material, entitle the person taking shares on the faith of such representation to rescind contract. In the case of fraud, damages may be obtained as well. A director or any person responsible for the issue of a prospectus is liable to pay damages to any person who is damaged by a false statement in the prospectus, unless he had reasonable grounds for believing in the truth of the statement, or made it upon the authority of an expert whom he had reasonable grounds for believing to be competent, or where the statement was an accurate copy of an official document. The prospectus must disclose: the contents of the memorandum; the number of founders' or deferred shares (if any); the number of shares fixed by the articles as the qualification of a director; the remuneration of the directors; the names, descriptions, and addresses of directors or proposed directors; the minimum subscription on which the directors may proceed to allotment; the number of shares or debentures issued as fully or partly paid up otherwise than in cash; the names and addresses of the vendors or any property acquired by the C., or proposed to be acquired; the amount paid or payable in cash, shares or debentures to the vendors, whether as purchase money or otherwise, specifying the amount (if any) payable for goodwill; the amount of the underwriting commission (i.e. consideration for which some person undertakes to take the whole or a portion of the offered shares as may not be subscribed for by the public); the amount of the preliminary expenses; the amount paid to any promoter and the

consideration for such payment; the dates of and parties to every material contract where not made in the ordinary course of the C.'s business; the names and addresses of the auditors (if any) of the C.; full particulars of the interest of each director in the promotion of or in the property proposed to be acquired by the C., and any sums paid to him, or agreed to be paid to him, to induce him to become a director; and the rights of voting attached to the sev. classes of shares (where divided into different classes). It is thought that the present law requires strengthening, especially in relation to the liabilities of promoters, the positive requirements of a prospectus, the compulsory publication of subsidiaries' results, consolidated balance sheets, and the disclosure of all relevant current contracts to auditors. Reforms in C. law designed to give shareholders more information and wider powers of control, to impose stronger checks on directors, prospectuses, private companies, and 'stags' were recommended by the Cohen committee in their report issued on July 18, 1945.

Directors and Members.—A C. is not bound to have directors. The individual members might undertake to carry on the business themselves. As a rule the C. appoints directors to act for it in all important matters. Their position is that of trustees and agents. Directors who make contracts for the C. are not personally liable on the contracts where they do not contract in their own names. The first directors are usually named in the articles, but if not named, the first directors are generally appointed by the subscribers to the memorandum. Being in a fiduciary position, the law requires that directors should always act in good faith and in the best interests of the C. In the absence of express agreement, directors are not entitled to remuneration. A director is not liable for unlawful acts if he can prove that he acted in ignorance of the facts which made his act unlawful. Even if negligent, a court of equity can relieve him from liability if he acted honestly and reasonably. The members of a C. include the persons who sign the memorandum and those who have agreed to become members by applying for shares or taking a transfer of shares from some other member. Any one can become a member, but an infant may repudiate his shares on attaining full age. Members must pay for their shares unless the allotment is made in return for services. Every C. must keep a register of its members, containing their names and addresses, the amount and numbers of their shares, the date of acquiring them, and the amount paid up on them. A list of the members, called the Annual Return, must be made out every year and sent to the registrar. This return must also give the name of persons who have ceased to be members since the date of the last return; and it must contain a summary distinguishing between shares issued for cash and shares issued as fully or partly paid up otherwise than in cash and specifying particulars as to the share

capital of the C., the amount called up on each share, the total amount of calls received, and of calls unpaid, the number of shares forfeited, particulars of the discount allowed on the issue of any shares, the amount of share warrants issued, the total amount of the indebtedness of the C. in respect of all mortgages and charges, and many other particulars.

Shares.—A share denotes a right to receive a certain proportion of the profits of the C. and of the capital of the C. when it is wound up. A member of a C. obtains his shares by allotment, his title being completed by the issue of a share certificate. Shares may be transferred in the manner provided by the articles of association. Transfer is usually effected by deed, completed by registration of the transfer. Every shareholder is entitled to transfer his shares, subject to any restrictions that may be imposed by the articles; thus a shareholder may assign his shares to a man of straw to avoid liability on the winding up, if not prohibited by the articles. If the C. be wound up within one year of such a transfer, the transferor remains liable to the amount unpaid on his shares. Transfers may be made subject to the approval of the directors by the articles, but, generally speaking, the rules of the Stock Exchange will not allow any such restriction on fully paid shares. Where a shareholder fails to pay calls due on his shares, the shares may be forfeited in accordance with the articles. On the liquidation of the C. the amount outstanding on the shares must be called up. On the matter of the real ownership of shares held by nominees the Cohen committee (see above) proposed that the latter should declare whether they are beneficial owners or act as nominees, but not that the name of the actual owner should be disclosed (see end of this article).

Capital is generally divided into preference shares, ordinary shares, and deferred shares. Preference shares are usually entitled to receive a fixed dividend before any dividend is paid on the ordinary shares. Preference shares are said to be cumulative where any deficiency in the dividends accruing in a bad year rests to be made good out of the profits of subsequent years. Deferred or founders' shares, which are usually taken by the promoters, are generally entitled to a proportion of the profits if the dividend on the ordinary shares amounts to more than a fixed amount. Deferred shares are sometimes allotted as fully paid up, and sometimes issued by way of bonus to ordinary shareholders. Preference shares on the winding up of the C. are paid off in full before the ordinary shares are paid anything, where they are made 'preferential as to capital.' Where the C. by special resolution elects that any portion of its capital not yet called up shall be incapable of being called up except to wind up the C., such uncalled capital is *reserve capital*, and it cannot be dealt with or charged by the directors. Capital may be increased or altered if authorized by the articles; if not, the C. may give itself power to do

so by special resolution. Alteration of capital occurs where existing shares are either consolidated, as, for example, by changing every ten £5 shares into one £50 share, or subdivided, as, for example, by changing every £5 share into five shares of £1 each. Capital may also be altered by converting fully paid shares into stock. The essential distinction between shares and stock is that the former are issued in round sums, whereas the latter may be divided into any aliquot amounts; neither are the divs. of stock numbered as are shares. The conversion of shares into stock means that the shares have been completely paid up, and that the time has come when the shares may be transferred in fragments. On the Stock Exchange stock is quoted at a certain price a £100 of stock, while shares are quoted at the price per share. Where the C. has sustained losses which it ought to provide for before paying dividends out of its profits, it may pass a resolution to reduce its capital. The leave of a chancery judge must be obtained on motion day where the rights of creditors are affected by the proposed reduction or writing off of capital.

Debentures.—A debenture is a document given to evidence the fact that money has been lent to the C.; it creates a charge on the C.'s assets, and provides for the repayment of the loan on the happening of certain events, as, for example, the making of an order for winding up the C., or an order for the appointment of a receiver. Debentures may be payable to bearer, or only to the registered holder, bearer debentures are transferable by delivery, and no notice of the transfer need be given to the C.

Meetings and Resolutions.—The Act of 1929 provides that a C. must hold a general meeting within not less than one month and not more than three months from the date of commencing business. The purpose of this, the statutory meeting, is that all the shareholders shall have an opportunity of forming an opinion of the exact position of the C. within a short time of its commencement. The directors are required to send out to the shareholders seven days before the statutory meeting a report stating the number of shares allotted and the general state of the C. The articles usually provide for the convening of an *annual general meeting*. Special business is transacted at an *extraordinary meeting*; the directors are bound to hold an extraordinary meeting if required to do so by the holders of one-tenth of the issued capital. Voting at meetings may be by show of hands, or on a poll, according to the articles (see under **CASTING VOTE**). Unless the articles make the voting dependent on the number of shares held, each shareholder has one vote. Resolutions are either ordinary, special, or extraordinary. An extraordinary resolution is one which has been passed by a majority of not less than three-fourths of the members voting at a general meeting of which notice specifying the intention to propose the resolution has been given. A special resolution is

one which has been passed by a three-fourths majority, at a meeting of which at least twenty-one days' notice has been given. It was formerly necessary for a special resolution to be confirmed at a second meeting, but this is not now necessary. An extraordinary resolution appears to be effective only in the case of the shareholders resolving that the C. cannot go on with its business and that it is advisable to wind it up.

Winding up is of three kinds: (a) by the court; (b) voluntary; (c) subject to supervision by the court. A C. may be wound up by the court if a special resolution has been passed to that effect, or if the C. does not commence business within a year of its incorporation, or if the C. is unable to pay its debts, or if the court is of opinion that it is just and equitable that the C. should be wound up. Winding up by the court is begun by petition, and any contributory or creditor may present a petition, but the court may refuse to order a winding up if the majority of the creditors oppose it. The most usual manner of winding up a C. is voluntarily. A voluntary winding up takes place when the period fixed for the duration of the C. by the articles has expired, or where the C. passes a special resolution to wind up the C. voluntarily, or resolves that as it cannot meet its liabilities it is advisable to go into liquidation. When a C. has passed a resolution to wind up voluntarily, the court may make an order that the voluntary winding up shall continue *subject to such supervision of the court and upon such terms and conditions as the court thinks just*. Whichever mode of winding up is adopted, a liquidator is appointed to call up the amount unpaid on the shares and generally to administer the property of the C. by applying the assets first in the payment of debts, and then, if there be any residue, among the shareholders according to their priority. On the winding-up order being made by the court the official receiver becomes provisional liquidator unless the creditors have chosen some other person to act as liquidator. The liquidator may bring and defend actions in the name of the C., and carry on the business of the C. so far as may be necessary for its beneficial winding up. Sometimes winding up is effected with the object of *reconstructing*, i.e. selling the undertaking of the C. to a new C. in return for shares in the new C. C. generally reconstruct when more capital is required, and when the only way to get it is to put pressure on existing shareholders, usually by inviting them to take up partly paid shares in the new or reconstructed C. in substitution for their fully paid shares in the old C. A shareholder who has not voted for the special resolution to wind up the C. may express his dissent to the liquidator, and require him to purchase his share interest in the old C., but he must dissent within a week of the resolution. The number of Cs. on the registers in Great Britain at the end of 1937 was 155,279 (excluding those in course of liquidation or removal from the registers). Of these 17,761 were public

and 137,518 were private Cs. After making various allowances at the end of that year there were 14,677 public Cs. with a paid-up capital of £4,067,035,904, and 137,492 private Cs. with a paid-up capital of £1,828,814,099. The paid-up capital in each case was higher than any previously recorded. At the end of 1938 there were 147,801 Cs. (England and Wales) on the register with paid-up capital £5,542,800,000; 9,715 (Scotland), capital £147,800,000; and 1753 (N. Ireland), capital £45,500,000; a total of 159,329 with a paid-up capital £6,036,100,000.

Private Companies.—A private C. is defined by the Companies Act as one which limits the number of its members to fifty (exclusive of employees), restricts the right to transfer shares, and prohibits any invitation to the public to subscribe for shares or debentures. Usually all the shares are held by members of a single family. A private C. may consist of no more than two members. Such a form of C. is usually resorted to when a trader desires to have the advantage of limited liability without the disadvantage of sharing his profit with other persons. A number of partnerships have been converted into private Cs. since the Act was passed, one great advantage of incorporation being that the death of a partner does not bring an end to the association, and a partner's interest may be continued in his son by giving the latter debentures in the C. See P. F. Simonson, *The Law relating to the reduction of the Share Capital of Joint Stock Companies*, 1924, and *Reconstruction and Amalgamation of Joint Stock Companies*, 1931; A. Stiebel, *Company Law and Precedents* (third ed.), 1929; F. Gore-Brown, *Handbook of Joint Stock Companies*, 1930; A. F. and A. M. R. Topham, *Principles of Company Law*, 1934; S. Borrie, *Private Companies: their Management and Statutory Obligations*, 1936.

The Companies Act, 1947 (passed as a result of the findings of the Cohen committee).—The main provisions are intended to secure what the Lord Chancellor (Lord Jowitt), on the second reading of the Bill, called financial democracy—namely to make it easier for shareholders to influence and control their managements. To that end the Act ensures that the fullest possible information is given to shareholders through the statement of accounts. It provides that 'every balance sheet of a company shall give a true and fair view of the state of affairs of a company, and every profit and loss account of a company shall give a true and fair view of the profit or loss of a company for the financial year.' Under clause 13, all holding Cs. must, subject to certain exceptions, furnish consolidated accounts for themselves and their subsidiaries so as to disclose a true and fair view of the position of the group as a whole. Hence they are brought fully within the provisions of the Act relating to publicity and the auditing of accounts by qualified auditors. Such provisions do not in fact go beyond the

practices of many Cs. before the Bill was introduced; but in one important respect the statutory requirements do go beyond the practices of many Cs. in the disclosure, so far as is practicable, of inner or secret reserves. Under the previous law, every C. had to lay a balance sheet and profit or loss account before its shareholders, and a public C. had to file its balance sheet with the registrar of Cs. It was not, however, required to file its profit and loss account, though the practice had been to do so. Under the Act of 1947 both have to be filed, as also are consolidated accounts where the case is one which calls for such accounts. Clause 16 provides that only a properly qualified person shall act as auditor of a C. and it is on the auditor, backed by public opinion, that reliance must chiefly be placed for the observance of these provisions. There are also important provisions as to private Cs., which, under previous Acts, were under no obligation to file their balance sheets with the registrar. That facility popularised the private C., and in 1946 there were on the register nearly 180,000 private Cs. as compared with only about 11,000 public Cs. The main reason for the privileged position of private Cs. was to enable family and other purely private concerns to enjoy the benefit of limited liability without having to publish their financial position to the world at large. But it was therefore possible for public Cs. to form subsidiaries as private Cs. which were in reality their own branches, and thereby to mask their real financial position. Hence the Cohen committee sought to restrict the privilege to the concern which is really private.

As to directors, the new Act provides that the accounts must show the aggregate of the directors' emoluments, the aggregate amount of directors' or past directors' pensions and compensation paid to them for loss of office. A fine of £500 may be imposed for a breach of the provisions relating to disclosure of payments to directors and officers of the C. The retiring age of directors of public Cs. is fixed at seventy; but a C. can alter its articles to provide any retiring age between sixty and eighty, and any director over seventy can continue in office by special resolution.

As to investigation the Act provides that a few hundred members of a C., even though they do not hold one-tenth of the issued shares, may apply for an investigation; and an investigation may in any case be ordered by the court, and the Board of Trade can themselves initiate an investigation if it appears to them that the matter is one of public concern—subject to there being circumstances of maladministration or of oppression of the members.

Clauses 48 to 60 on prospectuses, allotments, and offers for sale contain some salutary changes. The provision that no allotment may be made until the third day after the issue of the prospectus gives longer time for the public to digest the information. Where a prospectus states that application will be made or has been made for permission to deal on any

stock exchange, then unless such permission has been applied for before the third day after the issue of the prospectus, or if permission has been definitely refused within three weeks, the allotment is void and their money must be returned to the applicants. Clause 62 is designed to induce the experts to exercise proper care in making statements on the strength of which the public are asked to part with their money and that clause places a definite liability on the experts. The abuse of the 'stap' is also dealt with by the Act. On the debatable question of nominees, it was recognised by the Cohen committee that the practice of placing shares in the names of nominees had grown to such an extent in recent times that the register of membership had almost lost its significance as a register of the real owners of the shares. But the committee considered that it was impracticable to try to abolish the practice altogether, especially as there was no suggestion that it had led to any widespread abuse. The committee, however, recommended that every shareholder should be required to state whether he was the beneficial owner; secondly, every person who is directly or indirectly the beneficial owner of one per cent or more of the issued capital, or of the issued shares of any class, should be required to make a declaration to that effect to the C.; that a register of such beneficial ownership should be maintained; and that the Board of Trade should have power to investigate the ownership of shares where they think public interest so demands. Clause 57 embodies the second of the above recommendations, which however may prove easy of evasion.

Company, a subdivision of a battalion. The Brit. infantry battalion is divided into Cs., each of which is commanded by a captain and two lieutenants. The Army Service Corps is divided in a similar manner into Cs. Four Cs., distinguished by the letters A, B, C, and D, each of six officers and about 220 men, form a battalion. The C. is itself again divided into four platoons, and these are subdivided into sections. It itself the C. is practically self-controlled, keeping its own books and its own arm chest. The Engineers are similarly divided into Cs., but these Cs. are commanded by a major, a captain, and four lieutenants. A battery of artillery and a squadron of cavalry are the equivalents of a C. of infantry. C. of a ship includes the whole of the persons employed on board and paid for specific duties, and therefore excludes troops and passengers.

Company, John, popular nickname for the old E. India C.

Company Law, see COMPANY.

Comparative Anatomy, that portion of the science of anatomy which concerns itself with the comparison of the structures of various classes of animals. It is of great importance in the science of biology. See ANATOMY, BIOLOGY, and the articles on the various forms of life, and those on the different parts of the body.

Comparative Ethics comprises the study of the moral standards by which man has lived from the earliest times to the present day. This study does not aim at evaluation, but although conduct does not become ethical until it is guided by a consciously held principle of what is right and what is wrong, C. E. take us back to primitive times. The life of primitive man, as soon as he came to live in family and tribal groups, was hedged about by rules and taboos which were ethical in so far as they were directed towards securing the highest good for the individual or the tribe to which he belonged. Primitive morality, however, was governed by fear and the desire to placate the gods. Even among the anct. Egyptians ethics were a form of plety towards the gods, but the spirit pervading Gk. ethics was essentially different. In the words of Apuleius: 'The Egyptian deities were chiefly honoured by lamentations, and the Greek divinities by dances.' The Egyptian Book of the Dead, however, inculcates a high standard of conduct, of a restrained and prudent kind. The influence of oriental religions, with the mysticism found in Egyptian and Sinitic religions, tended to produce a system of ethics which superseded the purely Gk. spirit. The Brahmanic code of India and the Zoroastrian code of Persia both taught a moral law which was part of the divine will. While the former was ascetic and pessimistic, the latter was active and optimistic, preaching a dualism of good and evil and a conflict between them in which man must play an active part. Ethical teaching divorced from religion also had its roots in the E. In the teaching of Gautama-Buddha and of Confucius. Gautama preached a resignation to evil, but Confucius laid down common-sense rules of conduct and courtesy which have been the mainstay of the Chinese polity ever since. Lao-Tze, however, a contemporary of Confucius, had considerable influence in teaching that everything had its essential character which it was useless to try to alter. From this came a polytheism similar to that deduced from Plato's Theory of Ideas. The Neo-Platonists became mystical and polytheistic, but Plotinus, their founder, remained monotheistic, and he had considerable influence on Christian ethics, as also did the teaching of the Stoics. The ethics of Porphyry, the disciple of Plotinus, were very similar to those of his Christian contemporaries, and the antagonism between them is therefore surprising. The fathers of the Church did, indeed, borrow largely from earlier philosophies and metaphysics, but they were interested in dogma rather than ethics, and the problem of conduct did not claim precedence over science and politics until the eighteenth century. The Eng. philosophers, Locke, Berkeley, and Hume, advocated a morality founded on practical experience. Later in the century came the utilitarian hedonism of Bentham, from which were born the humanitarian ethics of the nineteenth century. In the meantime, however, Kant had estab-

morality as law, man's law unto himself. See W. E. H. Lecky, *History of European Morals from Augustus to Charlemagne*, 1869; E. A. Westermarck, *Origin and Growth of the Moral Ideas*, 1906-8; L. T. Hobhouse, *Morals in Evolution*, 1906; H. Sidgwick, *Outlines of the History of Ethics for English Readers* 1931.

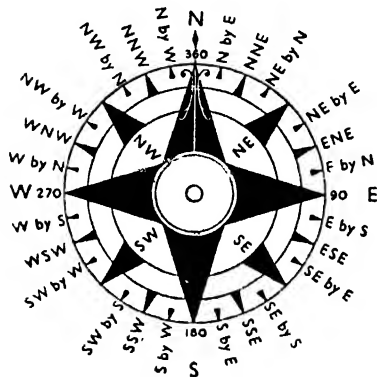
Comparetti, Domenico Pletro (1835-1927), It. scholar, b. in Rome, where he later studied at the univ., and became one of the chief classical scholars of Italy, being appointed prof. of Gk. at Pisa in 1859. Of his work in classical literature the best known are an ed. of the *Euxenippus* of Hyperides, monographs on Pindar and Sappho, and trans. of some fragments of Hyperides. His researches concern the *Book of Sindbad* and *Virgil in the Middle Ages*. He also ed. a collection of It. national songs. D. at Florence.

Compartment, term used in heraldry. Each of the divs. on a shield is called a C. The intention of quartering is to show the descent of one family from heiresses or co-heiresses of other houses.

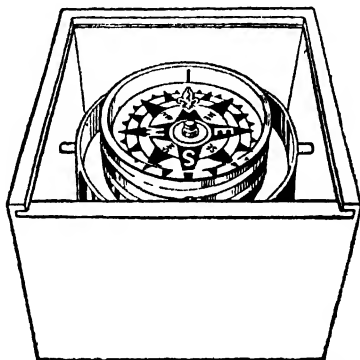
Compass, or **Mariner's Compass**, instrument for determining the magnetic meridian and for showing one's position with regard to it. It consists of a magnetised needle turning on a pivot, and is used chiefly for directing the courses of ships at sea. The ordinary C. is composed of three parts, the box or bowl, the card, and the needle. The needle consists of a fine magnetised strip of steel, or of sev. magnetised strips joined together. Fastened to the needle, and moving round with it is a circular card having its circumference divided into 360 degrees. In addition to this it is marked with the thirty-two points of the C. The four cardinal points are N., E., S., and W. and the spaces between these are divided as N.E., S.E., S.W., N.W. The spaces between these eight points are again equally divided as N.N.E., E.N.E., E.S.E., S.S.E., etc. The last sub-div. of the sixteen spaces gives us N. by E., N.E. by N., N.E. by E., E. by N., etc. The reading off of the thirty-two points in order, going round either way, is known as 'boxing the C.' The needle swings on a pivot which rises perpendicularly from the centre of a bowl, which has a glass covering to protect the needle. This bowl is generally of copper, as this metal is a particularly good conductor of electricity. The bowl is often filled with spirit, but the friction of this injures the susceptibility of the needle. The C. is generally situated in the binnacle, but other varieties of C. are known as standard, hanging, and steering C., according to their position on the ship. Until the end of the eighteenth century, Brit. naval Cs. were very carelessly constructed, but since that time much progress has been made. The C. at present in general use is that patented by Sir Wm. Thomson, elevated to the peerage as Lord Kelvin, in 1876. It is made up thus: In the centre is an aluminium boss, resting on an aluminium cup with sapphire centre poised on an iridium point. This boss

is connected with an aluminium outer ring by silk threads. From this outer ring, lower than it, and near the centre point, are suspended eight thin magnetised strips of steel, four on each side of the centre. These eight small magnets also have their corresponding ends fastened together by silk threads. To the outer rim is attached a circular paper, with the points marked on it. A special form of magnetic C. is used on aircraft, and a gyroscope C. is employed on both ships and aircraft. Two important forces combine to form the error of a ship's C. One of these is the attraction of the ship itself. The magnetic influences of the hull, machinery, and metal work

declining again. Irregular sources of variation are found in magnetic storms and similar electric disturbances. The dip of the C., induced vertically by the magnetic force of the earth, also varies. An azimuth circle is used to take bearings, and to discover the angle between the C. N. and the true N., the total error made up of variation and deviation. This circle has reflecting mirrors and sighting wires, and fits over the top of the C. bowl. Thus, from the position of the sun, when from 8° to 15° high, the amplitude, or azimuth, is made out. The early history of the C. is somewhat obscure. It was known to the Chinese at a very early date, and their own historians ascribe its



THE POINTS OF THE COMPASS



Philip Harris, Birmingham
MARINER'S COMPASS

In general all affect the needle and divert it from its proper position. The error thus caused is known as the deviation of the C., and is met in various ways. First, the C. is situated or placed some distance above the upper deck so as to be less susceptible to these influences. Secondly, the deviation is diminished by placing magnets and bars of soft iron in such a position around the C. that the attraction of the rest of the ship's metal is neutralised. Thirdly, deviation charts are made, showing carefully the deviation of the particular C. when pointing in various directions. With steering C., the errors are often considerable, so much so that a C. has been known to point steadily to one part of a ship, in whatever direction she headed. A second error is known as the variation of the C. When free from deviation, the needle points to the magnetic pole of the S. and not to the geographic pole. The two are differently situated and hence occurs the variation of the C. This variation varies considerably at different parts of the earth's surface, and at certain points becomes nil. The variation changes from year to year, gradually rising to a maximum and then

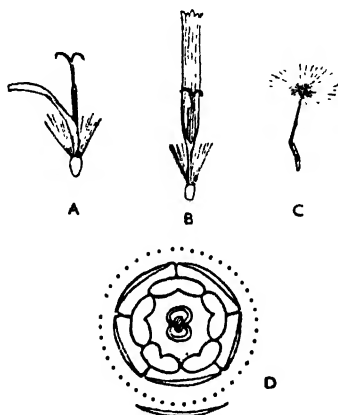
discovery to the year 2034 B.C. Certainly it was in common use in the Far E. by the end of the third century A.D. However, the Chinese were never inclined to take a high place as navigators, and their knowledge never led to the perfecting of this aid to navigation. It was once reputed that the principle of the C. was introduced into Europe by Marco Polo on his return from travels in Cathay, but it was well shown by Chappell (*Nature*, 346, June 16, 1876) that early in the twelfth century the knowledge had been arrived at by independent discovery. Some ascribe the discovery of its variation to the same century, but others ascribe it to Columbus. The terror that was caused by the variation of the magnetic needle on this explorer's voyage to America is well known, and certainly led the way to further knowledge on the subject.

Compass Berg, mt. in the Schnee Berge range, Cape Province, S. Africa, 30 m. N. of the tn. of Graaff Reinet. It rises 8500 ft. above the sea.

Compass Plant, see SILPHIUM.

Compasses, instruments for describing arcs and circles, or for measuring distances. They generally consist of two

The root is usually a tap-root, often thickened, *e.g.* in the dandelion, sometimes tuberous, *e.g.* in the dahlia. The leaves are usually exstipulate, radical, or alternate, but in some cases, *e.g.* in the sunflower, they are opposite. In many species laticiferous vessels are found containing the milky juice well seen in the dandelion and sow-thistle, and oil-ducts are very commonly present. Few of the plants are of economic importance, but many are cultivated for their beauty, *e.g.* dahlias, marigolds, coreopsis, asters, chrysanthemums. In some cases they are diuretic, as various conyzas and also the dandelion; some are tonic and stomachic, as wormwood



COMPOSITE: THE DANDELION

A, single floret, side view; B, single floret, front view; C, fruit with tuft of hairs (pappus); D, plan of floret.

and camomile; the common and Jerusalem artichokes, lettuce and endive are esculents; chicory is used as an adulterant in coffee. The C. are classified in various ways, based on the form of the flowers and on the distribution of different florets in the capitulum. The Tubuliflorae are those in which the flowers of the disk are not ligulate, and there is no latex; the Liguliflorae are those in which all the flowers of the capitulum are hermaphrodite and ligulate, and all the plants have laticiferous vessels; and a third sub-order of S. Amer. plants is sometimes added, the Labiatiflorae, in which the disk-flowers are hermaphrodite and the corolla is regular or bilabiate, while the ray-flowers have usually a bilabiate corolla. The daisy represents the first group, the dandelion the second, and the genus *Mutisia* the third.

Composition, in mechanics, refers to either velocities (see VELOCITY) or forces (see FORCES, PARALLELOGRAM OF). The converse of C., as we shall see later, is resolution, and these two problems, *i.e.*

of the C. and resolution of velocities and forces, form two of the fundamentals of the science of mechanics.

Dealing first with the C. and resolution of velocities, we treat the problem as a branch of dynamics (*q.v.*). Now a body cannot be in two places at the same time; therefore it cannot move in two different ways at the same time. But it is often convenient and even necessary to regard the motion of a body as being compounded of sev. velocities. These various velocities are termed the component velocities, and must be regarded as relative, while the actual velocity is said to be the resultant velocity, and the process of finding this resultant velocity is termed compounding the velocities. Thus, supposing one steamer passes another going in the same or the opposite direction, then the resultant velocity is the algebraic sum of the velocities of the steamers, which are the component velocities. But take the case of a ball thrown up in a railway carriage in motion. In this case the ball moves upwards under its own velocity and at the same time is carried forward with the velocity of the train. In this case, and all cases where the directions of the velocities are different but are co-planar, the theorem known as the parallelogram of velocities is used. 'If two component velocities be represented in magnitude and direction by the two adjacent sides of a parallelogram drawn from a point, then their resultant velocity will be represented by the diagonal of the parallelogram drawn from that point.' Thus in the case of the ball in the carriage, according as the speed of the ball upwards is greater or less than that of the train horizontally, so the resultant velocity will be in a direction approaching the vertical or the horizontal. All cases are not even as easy as this, for take a steamer travelling along a riv., with a man walking across the deck of the steamer, and a fly crawling up the man's hat (Briggs and Bryan): then the speed of the steamer is relative to that of the water, and the velocity of the man to that of the steamer, and that of the fly to the velocity of the man. Each of these is a component velocity of that of the fly, and affects its motion, but the actual or resultant motion is different from any of them. In this case it is possible to take two of the components, and, by finding their resultant, eliminate one; and so, by continuing this process, to arrive at last at one resultant. Other theorems, such as the triangle, polygon, and parallelepiped of velocities, aid in finding the resultant velocity in particular cases. This concerns the C. of velocities, but if we were given the resultant velocity, and asked to find the component velocities, we would have to use the process called the resolution of velocities. This is evidently the converse problem to the C. of velocities, and a moment's thought will show that just as it is possible to construct an infinite number of parallelograms around a diagonal, so there are an infinite number of possible component velocities to any given velocity. When, however,

the resolved component velocities required are to be at right angles to each other, as they usually are, then the problem is capable of solution.

Now since forces can be represented in magnitude and direction by straight lines, it is evident that all that has been stated applies to statics as well as to dynamics, and to forces as well as to velocities; so by merely altering the word velocity to force, the foregoing statements will explain the C. and resolution of forces. *See DYNAMICS; STATICS.*

Composition, in bankruptcy, the scheme of arrangement of his affairs proposed by a debtor after a receiving order has been made against him, embodying in writing the terms upon which he is desirous of satisfying or compromising the claims of his creditors. *See under BANKRUPTCY.*

Composition and Composer (of type), *see under PRINTING; TYPE; TYPE-SETTING.*

Compost, *see under GARDENING.*

Compostela, Santiago de, *see SANTIAGO.*

Compound, *see CHEMISTRY.*

Compound Dislocation, displacement of one bone from another with which it forms a joint, complicated by the bone having been forced through the skin, so allowing an access of air to the wound. It is a very serious condition, since it may involve inflammation and blood-poisoning, and in healing may induce ankylosis (q.v.). After the dislocation has been replaced antiseptic treatment and complete rest of the limb are necessary. *See DISLOCATION.*

Compound Engine, steam engine in which the expansion of the steam is divided into two phases, the first being effected in the high pressure, and the second in the low pressure, cylinder. The two phases may be divided over three cylinders, by dividing the steam from the high pressure cylinder to supply two low pressure cylinders, or by having two high pressure supplying one low pressure cylinder. This should not be confused with the triple expansion engine, in which the steam passes successively through three different cylinders.

Compound Fracture, one in which one of the bony fragments of the broken bone has pierced the skin, causing a wound which communicates with the fracture. In contradistinction to this, a complicated fracture is accompanied by some other injury not communicating with the fracture, e.g. a dislocation, a large flesh wound, or a broken blood-vessel. C. Fs. are obviously more serious than simple fractures, but the dangers have been much lessened since the introduction of antiseptic surgery.

Compound Householder, term frequently used by rating authorities to denote the occupier of a 'small tenement,' who is not separately rated for the relief of the poor, and whose rates may therefore be said to be included in his rent. This happens principally where rating authority compounds with the owner or landlords for the payment of the rates. The various Acts concerning the registration of voters require that those claiming the occupation franchise be separately rated. But the

Poor Rate Assessment and Collection Act, 1869, provides that in cases where the rateable value of a house does not exceed £20 in London, £13 in Liverpool, £10 in Birmingham or Manchester, and £8 elsewhere, the owner may agree with the rating authority to become liable for the rates himself whether his property be occupied or not, and that the rating authority may allow him a commission not exceeding 25 per cent on the rateable value. The Act also provides that the rating authority may order the owner to be rated instead of the occupier, subject to an abatement or deduction of 15 per cent. In such cases the C. H. is deemed to be separate for the purposes of the occupation franchise. The object of the Act of 1869 was to obviate the great expense and loss of time consequent on the collection of the rate from the numerous small occupiers. (Ryde on Rating, 1930.)

Compounding Offences. **Compounding felony** means forbearing to prosecute a person who has committed a felony in consideration of some reward received, as for example, agreeing not to prosecute a thief in consideration of receiving back the stolen goods. **Compounding a felony** is a misdemeanour punishable by fine and imprisonment. The publication of an advertisement in a newspaper or by any other means offering a reward for the return of stolen or lost property coupled with words indicating that no questions will be asked or inquiry made on the production of the goods, renders the advertiser, printer, and publisher each liable to a penalty of £50. **Compounding misdemeanours** without proper leave is also an offence. But where a particular misdemeanour more closely affects an individual than the public at large, the court will sometimes allow the accused, before any judgment is pronounced, to settle with the prosecutor when a nominal sentence only will be inflicted. *See also CONCEALMENT.*

Compound Interest, *see INTEREST.*

Compound Quantities, in algebra are figures consisting of more than one term; in arithmetic they are quantities expressed in terms of various denominations as cwts., qrs., lb.

Compressed-Air Baths are made of iron plates riveted together, of such a strength that they can withstand pressure. Air is pumped into the chamber until the required pressure, indicated by barometers, is reached. These baths will hold two or more persons. Another manner in which compressed air is used is that in which a mask fitted with tubes and valves is fitted tightly over the mouth and nose. The patient can then inhale compressed air and breathe out into rarefied air. The use of these in treating disease comes under the term *aerotherapeutics* (q.v.). The use of compressed air tends to lower the frequency of the chest and heart movements while increasing the oxygen absorption and the blood tension; the action of rarefied air will, of course, be opposite.

Compressed-Air Motors are machines that use air which has been raised to a

pressure much above that of the atmosphere, in a similar manner to that in which steam is used. They should not be confused with air engines (*q.v.*), which work on a different principle. Steam engines are more in vogue than C.-A. M., and it is easy to see that theoretically as well as practically the former should be regarded as being the more efficient, for whereas steam is obtained under pressure directly by the action of heat on water, some intermediate power must be used to obtain the air under pressure. This renders the use of compressed air comparatively more costly than the use of steam. Although this is so, however, there are many conditions under which C.-A. M. are advantageous. When steam has to be carried any distance, there is always some loss of power, owing to the radiation of heat from the pipes into the air. Now compressed air can be transmitted without loss of power through this cause. Again, the exhaust air, after having done its work in the engine, adds to the purity of the surrounding air, whereas exhaust steam vitiates the atmosphere.

Because of these two advantages C.-A. M. have attained considerable use in mines and tunnelling. C.-A. M. are used for driving coal-cutters (*see* COAL-MINING). Further, they are used for driving drills for boring holes in rocks and in tunnelling operations, while they are also used to manipulate hammers for riveting steel and iron plates together, and chisels in sculpturing, and small and very light sheep-shearers. All these machines require to be portable and easily handled and controlled, and C.-A. M. offer great facilities in these directions. They can be supplied with air through flexible tubes, and consequently the power generators do not add weight to the motor, nor do they make the rigid portion of the machines large and therefore cumbersome. Further, the working parts are not at a high temp., and therefore the danger attached to their use is less than in the case of steam. It can well be seen, too, that in the case of tunnelling and mining, the advantages mentioned above are very valuable. C.-A. M. have been used in many other ways. Compressed air can, of course, be stored in cylinders without loss of power. Stored in this manner at a pressure approaching 2000 lb. per square inch, in reservoirs under the vehicle, it has been used as the motive force for driving tramcars; it has, at much greater pressure even, also been used in motor cars. Again, pneumatic tubes for transmitting letters and small parcels of all kinds are worked partly by compressed air and partly by exhaustion. Further, in some of the Amer. arsenal locomotives are driven by compressed air, and their advantage over steam engines in the neighbourhood of explosives is easily understood. In addition to these uses, there are the cases of lifts or elevators, which are sometimes worked by compressed air, and the automatic brakes on passenger trains offer further illustration of its use; while one of their most important

uses is in supplying the locomotive power to torpedoes. There are sev. types of compressors for driving the motors, the type depending on the number of air cylinders and the manner of their setting in relation to the steam cylinders. An auxiliary for increasing the power is used sometimes, and consists in heating the air before it reaches the motor. This heating, of course, causes it to expand, and in proportion to the expansion so is the power increased, in some cases to as much as 30 per cent. With the growth of use of steel framework for the construction of large buildings, so much riveting has to be done that a light and easily used riveting machine is essential. The pneumatic hand-hammer (or riveter) supplies this need. The supply of compressed air is obtained from a small but very powerful unit driven by a petrol engine, the whole of which is mounted on a small truck which can be drawn anywhere, the power being conveyed by flexible armoured tubing, and easily led out of the way of other workers. Another use for C.-A. M. has been found by road engineers in the pneumatic road drill which is taking the place of the now obsolescent pick. This road drill can be used by one man, and can do work more quickly and better than the pick. In mining machinery there are two main types of C.-A. M. which are used to drive pneumatic tools: (a) turbine-type and (b) cylinder-type motors. In the former the C.-A. M. consists of three parts, a stator and two rotors. The rotors, which revolve inside the stator, consist of two V-shape tooth gear-wheels meshing together; the inflowing air is forced on to both gears, and the teeth of the gears as they revolve form valves and stop the air from escaping to the other side of the gears. In the cylinder type of machine the motive force is obtained from the motive action of two more cylinders; the valves which are driven from the crankshaft admit the air, which drives down the piston, and at the end of its motion the air escapes from ports on one side of the cylinder casing. Pneumatic tools possess many advantages over electric tools, the chief being their lightness, a C.-A. M., which can develop two or three h.p., weighing no more than 30 to 35 lb. *See* D. Bral, *Compressed Air in Engineering Production*, 1913.

Compression and Compressibility. When a body is acted on by a force in such a manner that it decreases in volume, it is said to be compressed, and the diminution in volume is its compression. The term compressibility is sometimes used to denote this property of yielding to pressure, but strictly used it represents the extent of this property as possessed by various substances. Different bodies will diminish by different amounts under the same pressure, and to represent this varying amount of yielding, compressibility is defined as being the ratio of the amount of compression per unit volume to the pressure applied. So it is found by measuring the amount of compression of a given volume under a given pressure, and dividing this by the product of the

original volume and the pressure. This gives the average compressibility per unit pressure, and the unit of pressure is usually taken as one atmosphere, or the weight of a square-inch section column of mercury, 29.905 in. in height at a temp. of 0° C., weighed at sea level. This is really equal to 14.7 lb. weight per square inch. The compressibility of gases is greater than that of liquids or solids. For gases the relation between pressure and volume being determined by Boyle's law, that the volume is inversely proportional to the pressure, it follows that the diminution in volume grows less as the pressure becomes greater, i.e., that the compressibility is inversely proportional to the pressure. Liquids are compressible, e.g. water can be compressed, although the compressibility is less at high than at low temps. and pressures. Measurements of the compressibility of liquids are made in an instrument called a piezometer. Thus it has been proved that the compressibility of water at 10° C. and a pressure of one ton per square inch is approximately $\frac{1}{20,000}$. Sea water is roughly 10 per cent. less compressible than fresh water. Mercury has the ~~smallest~~ compressibility of any fluid, its compressibility being roughly one-sixteenth that of water. The compressibility of solids is very much smaller than that of gases or liquids, and except for theoretical purposes can be neglected. In measuring the compressibility of liquids, however, corrections must be made for the compressibility of the instrument employed. This being usually of glass, careful measurements have been made of its compressibility. This varies for the different kinds of glass, but is roughly about one-twentieth that of water.

Compressors. C. are used chiefly in connection with mining machinery. There are two main types of C., namely reciprocating and rotary C. The first is the more widely used, and there are many models, all varying in design and action. The low-pressure compressor, up to 200 lb. per square inch, is a single-stage compressor, i.e. the air is compressed by the single action of one piston. In pressures of 200 lb. and over the C. are two, three, four, or multi-stage C., i.e. the air is first compressed in one cylinder, and then suffers one or more subsequent compressions before it is finally stored. The valves of a compressor are of two types; those placed in the cylinder casing and those fitted in the piston itself; the valves in both cases are automatic in action, being opened and closed by the suction and compression strokes of the piston. In recent years high-speed C. have been developed in connection with refrigerating plants, and for liquefying gases such as air, with the object of subsequently separating their constituents by evaporation. Most ammonia C. are of the single-acting enclosed type with the ammonia in the crank case; the valve ports are situated in the cylinder walls and lie between the limits of travel of the upper and lower parts of the piston.

Compromise Measures of 1850. These

were a series of measures which had for their object the settlement of five questions in dispute between the pro-slavery and anti-slavery factions in the U.S.A. As a fact the compromise of 1850 settled nothing, but was compounded by every element of the country's politics, and may be made to yield on analysis almost every ingredient of the historian's narrative. Ter. had just been acquired by conquest and purchase from Mexico; Texas had just been admitted to the Union, and the perplexing question was the extension or restriction of slavery, for it threw obstacles in the way of a plan and gov. for the new ter., and made the determination of the Texan boundary a matter of grave sectional interest. Part of the country wanted the slave trade abolished from the dist. of Columbia—the seat of the national gov.—and slavery from the new ter.; the other part urged with equal vehemence that the slavery question was a matter for decision by the framers of the State constitution (when it should come to be formed) of the new ter.

The result of this controversy was the series of measures framed and introduced by a committee of which Henry Clay was chairman, called the C. M. of 1850, which were signed by the President in September of that year. It was agreed (1) that Texas should be paid 10,000,000 dollars to relinquish her claim upon any portion of New Mexico; (2) that California should be admitted as a state under a constitution which prohibited slavery; (3) that New Mexico and Utah should be organized as ters without any regulation in respect of slavery, leaving it to the election of their own settlers whether there should be owner-ship in slaves or not; (4) that the slave trade should be excluded from Columbia, but be interfered with nowhere else by the Federal law; and (5) that the whole judicial and administrative machinery of the Federal Gov. should be put at the disposal of the S. slaveowners for the recovery of fugitive slaves found within the free states. There seems little doubt that the C. M. helped to postpone secession and civil war for some years, during which time the N.W. grew more wealthy and was brought into closer touch with the N.E. states. See *Cambridge Modern History*, vol. vii., chap. xli., and J. F. Rhodes, *History of the U.S. from the Compromise of 1850, 1893-1906*.

Comptat Venasquin (from *Venasque*, Lat. *Vindazinum*) was a parallel div. to Comptat d'Avignon, the two being cos. of the papal states, held by the popes from 1228 to 1791. C.V. was, however, larger, having an area of 450,000 ac., and now forms more than half of Vaucluse. The country is fertile, with magnificent scenery. Ventoux (1912 ft.) is the loftiest peak. The dist. is irrigated by a system of canals and by the Rhône, Durance, and Sorgue. Venasque is a tn. in Vaucluse.

Compton, Arthur Holly, Amer. physicist, b. at Wooster, Ohio, Sept. 10, 1892; son of Elias C. Graduate College of Wooster, 1913; instructor of physics in univ. of

Minnesota, 1916-17; and research physicist of the Westinghouse Light Company, Pittsburgh, 1917-19. Came to England, and pursued research at Cambridge, 1919-20; prof. of physics at Washington Univ., St. Louis, Missouri, 1920-23; prof. of physics at Univ. of Chicago since 1923. His speciality is X-rays. Made first measurement of wavelength of hard gamma rays, discovered change in wavelength of X-rays when scattered, and, with other researchers, discovered total reflection and effected polarisation of X-rays.

Compton Effect (X-rays). Discovered in 1923 by A. H. Compton, this effect is the change of wavelength of a beam of X-rays when scattered by substances. This change of 'colour' cannot be accounted for by the wave theory of light, which, however accounts for many of the properties of X-rays (*q.v.*), known to be rays of extremely short wavelength. The corpuscular theory of light, while accounting for the C. E., is unable to explain other properties of X-rays and ordinary light. Up to the present time no reconciliation between the two theories has been effected.

Compton, Henry (real name Charles Mackenzie) (1805-77), Eng. comedian, b. at Huntingdon. In 1844 he appeared as Touchstone in *As You Like It*, and at once became famous. Other roles were Blenkinsop in Tom Taylor's *Unequal Match*, Muggles in Byron's *Partners for Life* at the Globe Theatre, and Dr. Pangloss in *The Heir at Law*.

Compton, Spencer Joshua Alwyne, see NORTHAMPTON, MARQUESS OF.

Comptonia asplenifolia, or Sweet Fern, species of *Comptonia*, which genus, like *Myrica*, belongs to the order Myricaceae. It is a small bush, 3 to 4 ft. high, yielding a powerful aromatic fragrance when rubbed between the fingers. It is a native of the woods and mts. of the U.S.A., and possesses tonic and astringent properties.

Comptroller, official title for one who keeps or audits accounts, used mainly for gov. offices, or in connection with the royal household, when it refers to a kind of steward or treasurer. Thus the C.-general is the head of the National Debt Office, the C. and auditor-general the head of the Exchequer and Audit Dept., etc. The word is more correctly spelt *controller*, as it comes from the Fr. *contrerolle*, from Med. Lat. *contrarotulus*, a counter-roll or copy of a document used to check the original; in this form it is applied to the controller of the Navy and to the head of the Stationery Office in England, and in the U.S.A. to the controller of the Treasury and the controller of the currency, the latter being one who administers the law relating to national banks.

Compurgator (Lat. *compurgare*, to purge completely), name given to a witness of character who swore to the character of the accused person in a trial. The word was used only in eccles. law until the seventeenth century, when it was used by legal antiquaries in connection with the

civil law. In Glasgow, up to the middle of the eighteenth century, when the office was abolished, an official whose duty it was to clear the streets of strollers during the time of church worship on Sunday was called a C.

Comrades of the Great War, Brit. organisation of ex-service men which arose out of the Great War, or First World War. With the cessation of hostilities, public attention was naturally drawn to the consequential effects of the war, and among the numerous matters which called for prompt decision were pensions, the treatment of wounds, the supply of artificial limbs, resettlement in civil occupations, etc. The majority of ex-service men were incompetent to look to their own interests in such matters, and required the advice and assistance of those who were better qualified to act. It was from such circumstances that the Comrades of the Great War arose, and it did much good work in its own particular field. Later it was absorbed into the Brit. Legion (*q.v.*), although some individual branches or clubs still exist and retain their original identity and character.

Comrie, par. and vil., Perthshire, Scotland, on the R. Earn, 6½ m. W. of Crieff. It lies on the fault line which divides the Highlands from the Lowlands and is subject to occasional earthquake shocks. Roofing slates are worked there. Pop. 1800.

Comstock, Anna Botsford (1854-1930), Amer. naturalist and natural-hist. artist; b. at Otto, New York; wife of John Henry C. (*q.v.*). Prof. of nature study, Cornell, 1920-22; associate director, Amer. Nature Association. Works include *Ways of the Sir-footed* (1903); *How to Know the Butterflies* (with her husband) (1904); *Confessions to a Heathen Idol* (1906); *Handbook of Nature Study* (1911; sixteenth ed., 1925); *Bird, Animal, Tree, and Plant Handbooks* (1914); *Trees at Leisure* (1916). Ed., *Nature Study Review* (1917-23).

Comstock, John Henry (1849-1931), Amer. entomologist; b. at Janesville, Wisconsin. U.S. entomologist, Washington, 1879-81. Prof. of entomology and invertebrate zoology, Cornell, 1882-1914. Works include *Report on Cotton Insects* (1879); *Notes on Entomology* (1885); *Manual for the Study of Insects* (1895); *Insect Life*, (1897); *How to Know the Butterflies* (with his wife) (1904); *The Spider Book* (1912); *The Wings of Insects* (1891).

Comstock Lode, famous silver mine in Nevada, U.S.A., discovered in 1859; the richness of the mine may be said to have caused the rise of Nevada as one of the great gold- and silver-mining districts of the world. It was financed chiefly from San Francisco, and the 'bonanza' boom of the seventies led to a financial panic. The Comstock dist. is exceedingly rich in both gold and silver, but the fall in the price of the latter resulted in great depression. Virginia City, a prosperous mining centre, is built on the site of C. L.

Comte, Auguste (1798-1857), founder of Positivism. He was b. at Montpellier,

where his father, a strong Royalist and Catholic, was the receiver-general of taxes. He received his early education at the public school of his own tn., and later proceeded to the Ecole Polytechnique in Paris. About 1818 he came under the influence of Saint-Simon, a relative of the famous duc de Saint-Simon, and although he himself at a later date declared that the influence of Saint-Simon was for evil rather than for good, there is no doubt that during this period of his life he had a great admiration for his patron. Saint-Simon's teeming imagination seems at any rate to have supplied C. with the bases for some, at least, of his later philosophical ideas. In 1824, after a quarrel, C. severed his connection with Saint-Simon entirely. In the following year he married, but his marriage did not altogether turn out for good. He now found the greatest difficulty in making a living; he tried to get pupils but failed; he wrote a little for the papers, and finally proceeded to give a course of lectures which would embody the main principles of his philosophy. The lectures were at the beginning seriously interfered with, since he suffered at this time from an attack of insanity, from which, however, in the course of a few months he recovered. In 1828 the lectures were resumed, and two years later appeared the first vol. of his great work, *Cours de philosophie positive*. Financially, matters had become brighter, and he was in possession of an income which amounted to £100 a year, although he had to work excessively hard for it. Until 1842 matters went more or less smoothly for C., but in that year the temperamental differences between himself and his wife culminated in their separation; although for a long time after this separation they corresponded, and C., even in the midst of later financial difficulties, always made her an allowance. By this time he had lost half his income owing to a gratuitous attack which he had made on the directors of the Ecole Polytechnique, and for some time he lived on the subsidies of friends. In 1842 had appeared the sixth and final vol. of the *Philosophie positive*, and during the pub. of this work he had become friendly with J. S. Mill, who now helped him very considerably in his financial difficulties. In 1845 C. fell under the influence of Mme de Vaux, an influence which seems to have been entirely for good, but which, unfortunately, lasted for only a year, being terminated by the death of the lady in 1846. C. was genuinely attached to her, and seems to have felt her death very deeply. In 1851 appeared the first vol. of *Système de politique positive*, the last vol. in 1854. *Catechisme positiviste* was pub. in 1852. During the years 1849-51 C. gave lectures at the Palais Royal, where he strenuously advocated his general theories. He was attacked by cancer in the year 1859, and *d.* towards the close of that year. See also POSITIVISM; PHILOSOPHY. See G. H. Lewes, *Comte's Philosophy*, 1863; E. Littré, *Comte et la*

philosophie positive, 1863; J. S. Mills, *Comte and Positivism*, 1865; E. de Roberty, *Comte and Spencer*, 1894; F. J. Gould, *Auguste Comte*, 1920.

Comus (from Gk. *κόμος*, revel, or a company of revellers), the god of festive mirth, unknown in classical mythology; he belongs to the later Gk. mythology, and is depicted by Philostratus, who wrote in the third century A.D., as a sleeping youth with wings, crowned with flowers, and holding in either hand a hunting spear and an inverted torch. Milton in his *Comus* represents him as the offspring of Bacchus and Circe endowed with the magic power of turning human faces into those of beasts.

Comyn, Cumming, or Cumyn, Fr. family who came to England with William the Conqueror. Robert was made earl of Northumberland, his nephew William becoming chancellor of Scotland. John Comyn (*d.* c. 1300) was a Scottish baron and nephew of the earls of Buchan and Menteith, from the latter of whom he inherited the lordship of Badenoch. He took part in the negotiations between Edward I. and the Scots (1289), and was one of the claimants for the Scottish throne on the death of Margaret, the Maid of Norway. He fought, however, for John de Balliol, but in 1296 submitted to Edward I., and came to England. His son John, known as the Red C., also fought for Balliol, and was kept as a hostage in England for a time. After the battle of Falkirk he was made guardian of Scotland, and for five years carried on the feud with England. He has become famous on account of his quarrel with Robert Bruce, the origin of which is unknown, but in Jan., 1306 they met at Dumfries, and as a result C. was stabbed to death, whether by Bruce or his followers is not known.

Conacre (a corruption of corn-acre), obsolete land system once prevalent in Ireland, under which small patches of land were let out for potato growing in lieu of wages.

Conca, Sebastiano (1676-1764), It. oil- and fresco-painter, who studied under Solimena. In his work he was an imitator of Pietro da Cortona, whom he resembled in his superficiality and rapidity. Of his works the 'Sacred Pool of Siloam' in the hospital of Santa Maria della Scala at Siena, is the best.

Concan, see KONKAN.

Concan, maritime dist. of Bombay, India, stretching N. and S. from Danam to Goa, and E. and W. from the Ghats to the Indian Ocean. Its extent is about 300 m. long, and an average of 40 m. broad. It covers the Brit. dists. of Tannah and Ratnagiri. The climate is subject to violent monsoon rains.

Concarneau, seaport in the dept. of Finistère, France, 14 m. S.E. of Quimper. The old tn., which is surrounded by ramparts, is believed to date back to the fourteenth century; it lies on an is. near the bay of La Forêt, while the newer portion, St. Croix, is on the opposite shore. It is a centre of the sardine, mackerel, and tunny fisheries. Pop. 10,500.

Concave (Lat. *concavus*, hollowed), and **Convex** (Lat. *convexus*, vaulted) are two opposite terms. As their etymological derivation signifies, the former is applied to a surface falling, the latter to a surface rising in a circular form. Thus the outer surface of a saucer is convex, the inside concave. In mathematics a line is convex on the side on which the point of intersection of two tangents falls, and on the other side concave.

Concealment, in the law of contract, means any improper suppression of facts or circumstances by one of the parties to a contract so as to induce the other party to enter into it. In certain contracts, styled contracts *uberrimæ fidei* (of the utmost faith), each party must make the fullest disclosure of all material facts within his knowledge, or the contract will be voidable at the option of the party misled. The remedy for a fraudulent C. is an action to rescind the contract and for damages; for an innocent but material C. rescission only (see **CONTRACT**). In criminal law, a person knowing of any treason or felony without in any way assenting to it, is guilty of misprision if he conceals his knowledge. Misprision of felony is punishable by fine and imprisonment (see also **MISPRISION**). Various acts of C. by a bankrupt if fraudulent render the bankrupt liable to certain penalties under the Debtors Act, 1869 (see **BANKRUPTCY**). C. of treasure trove is punishable by fine and imprisonment. C. of birth is a misdemeanour punishable by imprisonment. C. of documents of title to land or any testamentary instrument is a felony punishable by imprisonment.

Concealment of Birth, see **BIRTH**, **CONCEALMENT OF**.

Concelção de Nogueira, tn. of Brazil, in the state of Minas Geraes, 85 m. N.E. of Ouro Preto. It has gold and iron mines. Pop. 10,000.

Concentration, in metallurgy, the treatment of ore to separate the precious metal from the gangue. Generally the ore, having been ground into small pieces, is separated by a process in which reliance is placed in the difference between the sp. gr. of those portions which contain the metal and the valueless gangue. The separated product containing the metal is the concentrate and the residue is called the tailings.

Concentration Camp, institution of Nazi Germany for the detention of opponents of the Nazi regime. These C. Cs. of the Third Reich would have been inconceivable in Imperial Germany. It is true that the Third Reich had something in common with the empire of the Hohenzollerns—enough to render both a menace to mankind—but there was one fundamental difference: the empire was under the rule of law, the Third Reich was not. It has been estimated that about 50,000 persons were in the C. Cs. at the outbreak of the war in 1939, and that upwards of 300,000 had passed through them in the previous seven or eight years. Prisoners in these camps included, besides Jews, Communists, Socialists, Democrats, Catholics,

opposition Protestants, Czechs, and indeed even such Nazis as had refused to conform to the party line. Detention in the camps was entirely arbitrary; no person there was ever tried nor was there any legal time-limit to their detention, and indeed, most were there for years. Among the worst of these C. Cs. were those at Belsen, Buchenwald, Dachau, Auschwitz, Oranienburg, Papenburg, Maideneck, Oswiecim, and Treblinka. The prisoners were beaten, forced to hard work far beyond their physical capacity or endurance, and exposed to frightful tortures and humiliations by their guards. Descriptions of the appalling sights which met the eyes of the liberating Brit. troops will be found under **BEISEN** and **BUCHENWALD**. There was, however, convincing Polish evidence that the camps of Maideneck, Oswiecim, and Treblinka were torture camps, where the reign of terror and sadism far exceeded all that had been reported from Belsen, Buchenwald, or Dachau. Millions of persons were killed in these camps, the majority slowly tortured to death in the execution of a deliberate policy of mass extermination (see **Brit. White Paper of Oct. 1939**). The existence of the C. Cs. was officially admitted; they were impudently represented as political reformatories, so to speak, of a rather humane character: on Aug. 23, 1934 Goebbels (*q.v.*) declared to the delegates of the International Penal and Prison Congress in Berlin that the purpose of the camps was to turn 'anti-social' members of society into 'useful members' by the most humane means. Goering (*q.v.*), at a diplomatic reception, said in an address that to characterise the camps as 'places of torture' was a malicious invention. The terror practised in these camps and in the similar Brown Houses—the notorious Hedemannstrasse and Papenstrasse, the Ulap, the Columbia Bar, and others which received thousands of men, and even women, in March 1933, and from which latter issued whimpering physical and mental wrecks with faces smashed or pulped out of recognition by the *Stahlruten*, tapering steel rods with leather-covered handles, wielded by the brown-shirted S.A.—was entrusted exclusively to the Gestapo by a special law which was promulgated on Feb. 12, 1935, though camps had been in existence for at least two years before that date. The Nuremberg tribunal of 1945-46 heard the evidence of Hoess, commandant of the Auschwitz C. C. from May 1, 1940 to Dec. 1, 1943, who estimated that in that camp alone in that time 2,500,000 persons were exterminated and that a further 500,000 d. from disease and starvation. The unique horror of the C. Cs., and the persistence of that horror for more than twelve years, the more than inhuman cruelty of the terrorists, and the connivance or at least the indifference of a huge public—all these demanded an explanation which in the nature of things was impossible to exact. But at least Goering and others, including Kaltenbrunner, organiser of the camps, and Dr. Hans Frank, head of the

administration of the so-called central gov. of Poland, were tried and condemned to death at Nuremberg as war criminals, and all, save Goering who took his own life, duly paid the penalty.

Concentric (*con* and *centre*), name which is applied in mathematics to any two or more similar figures which have a common centre. Thus the upper and lower edges of the rim of a wheel form two concentric circles.

Concepción: 1. Prov. of Chile, situated between Nuble on the N., and Biobío and Angol on the S. Its area is about 3260 sq. m., and there are large and extremely fertile plains. The cap., C., is a seaport, situated on the r. b. of the R. Biobío, 7½ m. from its mouth, and 270 m. S.S.W. from Santiago. Talcahuano, however, on the bay of C., is more used as a port. C. has a considerable trade in grain, hides, tallow, timber, salt beef, etc., and in the vicinity are large coal mines. The tn. was founded by Pedro Valdivia in 1550. In 1739 it was destroyed by a volcanic eruption, and again in 1751. The earthquake in 1835 once more reduced it to ruins, but it is now a well-built town. (prov.) 308,200; (tn.) 92,300. 2. Dept. of the oriental section of Paraguay, lying to the E. of Paraguay R. The cap. of the same name lies on the riv.'s l. b. about 135 m. N.N.E. of Asunción. It has an important trade in maté tea. Pop. (dept.) 44,300; (tn.) 16,400.

Concepción de la Vega, tn. of San Comingo, 5 m. S.E. of Santiago, on the Camá. It has a fine cathedral. Pop. 7000.

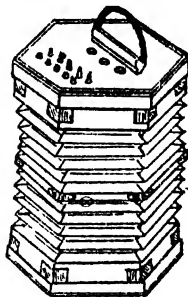
Concepción del Uruguay, tn. in the prov. of Entre Ríos, Argentina, on the r. b. of the R. Uruguay, on the Entre Ríos railway. It has a college, slaughter houses, and new port works. Pop. 20,000.

Concept and Conceptualism. *Concept*, a term in philosophy, logical, metaphysical, and psychological. It is the result obtained by the mental process popularly known as 'abstraction.' We recognise various particular objects which we call 'horses,' and form a general idea, by abstracting certain common qualities from these particulars, of a universal 'horse': the mind 'affirms' a concept 'horse' by a process of abstracting, combining, and reconstructing of 'perceptions' thus; 'conception' is contrasted with 'perception.' *Conceptualism* was the scholastic theory, mainly connected with the name of Abelard, which in attacking the rival theories of Nominalism and Realism, attempted to steer a middle course between the two. The question in debate was as to the nature of genera and species; do they exist in themselves or only in the mind? While the Nominalists held that 'universals', i.e. genera and species, are only names invented to express the term of qualities expressed, e.g. by the term 'horse,' and are *post res*, i.e. after things, subsequent; the Realists affirmed that 'universals' have real existence and are antecedent, *ante res*. The conceptualist theory held that they are concepts, existing in the mind expressing a simi-

larity: they are really existent, but not apart from particular objects to which they apply, or, as Abelard put it, a 'universal' obtains reality by being predicated of anything; e.g. there is no reality in the concept 'horse' till you affirm 'Persimmon is a horse.' The rival schools had a great influence in the development of medieval theology. Abelard's conceptualism swayed too much towards the dangerous, materialistic Nominalist school for him to escape the attack of the Church.

Concert, in music, is musical harmony. Concerted music is that written for two or more instruments, where each part is of equal importance.

Concertina, or **Melodion** (Fr. *concertina*. Ger. *harmonika*, or Argentine *bandonion*). It is a wind instrument with free reeds. It is composed of two hexagonal or rectangular keyboards which are connected by a long, expanding bellows. On the keyboard



CONCERTINA

are rows of knobs, which when pressed open valves which admit the air to the free reeds, by whose vibration the sound is formed. The reeds are narrow slips of brass riveted to the inside surface of the keyboard at one end. The outer ends are bent in alternate ways; those bent inwards are actuated by compression, those outwards by suction. The length and thickness of the reeds determine the pitch. The Eng. C. was invented and patented by Sir Charles Wheatstone in 1829; it has a double action, playing the same note on compression and expansion. The Ger. variety, on the other hand, plays two different notes when compressed and then expanded. The C. is made in sev. varieties—treble, tenor, bass, and double bass—the compass of the whole set being seven octaves. The timbre of the instrument is soft, and capable of delicate gradations. The capabilities of the C. have been recognised by many musicians, concertos having been written for it by Molique and Regondi. Tchaikovsky included four Cs. in the score of his second orchestral suite. The most prolific composer for C. was Edward Elgar.

Concerto, musical composition written with an orchestral accompaniment, calculated to display the powers of an instrument or a performer. Cs. are generally

written for a solo instrument, though Bach's Cs. for two or more pianofortes, Mozart's for two pianofortes, and Beethoven's for pianoforte, violin, and violoncello, may be cited as exceptions. A C. consists of three movements, which require a clear development and a strict adherence to the rules of form; like the sonata, on which it is founded. There is usually a *cadenza* in the first, or sometimes in the last movement; this is an embellishment or flourish, prepared or improvised, for the solo instrument. Few examples of classical Cs. for wind instruments are found, though Weber's clarinet C. is an exception. The earliest composer to write Cs. was Torelli, whose work dates from 1686. Since that time modifications have been introduced by Corelli, Geminiani, Bach, and others; Mozart gave it its modern form, although Beethoven introduced some modifications of this. Mozart wrote four concertos for horn, Spohr two for clarinet, Schumann a *Concertstück* for four horns (all with orchestra).

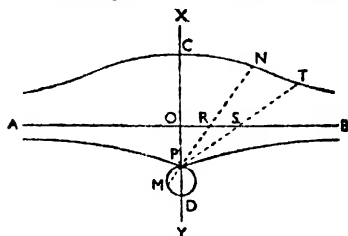
Concert Pitch, see PRICH.

Conch (Gk. *κόχχης*, mussel or cockle shell), name applied to various shells, but especially to the fountain shell, a species of gastropod mollusc in the wing-shell family. In art it is represented by a *Triton* shell, from the allied family Tritonidae.

Conchagua, Bay of, see FONSECA, GULF OF.

Conchifera, term which Lamarck applied to the *Acéphales testacea* of Cuvier, together with the Brachiopoda, which forms Cuvier's fifth class of molluscs. The term *Acéphala Testacea* has been replaced by modern zoologists by *Lamellibranchiata*.

Conchoid (*κόχχης*, shell; *ῥῖος*, form), plane curve invented by Nicomedes, who used it to solve the problem of the duplication of the cube, the trisection of an angle, etc. AB is a fixed straight line and P a fixed point. Equal straight lines



CONCHOID

are drawn through the point P so that they are bisected by the straight line AB, and their ends trace out the two branches of the conchoid. Thus, in the figure, $OC = OD = RN = RM = ST = SP$. When OD is greater than OP the lower branch forms a loop below P, as in the figure; when $OD = OP$ a cusp is formed at P; when OD is less than OP the lower branch does not reach P. The curve is obviously symmetrical about the straight line XY.

Conchology, branch of zoology which treats of molluscs with reference to their shells. In Victorian days the science of C. was immensely popular, but it is now recognised that the inhab. of any shell is much more important to science than the shell itself.

Conchos, riv. of Mexico, which rises in the E. of the Sierra Madre, and, flowing through the state of Chihuahua for about 350 m., joins the Rio Grande del Norte at Presidio del Norte.

Concierge, Fr. word, signifying the janitor or door-porter commonly attached to a Fr. house. He has a small office near the front door or main entrance, and his duties are to admit visitors, and receive parcels, telegrams, telephone messages, etc.

Conciliation in Industry. Machinery for the settlement of industrial disputes by C. and arbitration has been in operation in various countries for many years. The Conciliation Act of 1896, combined with the Industrial Courts Act, 1919, are the characteristic Brit. form of the system, with its emphasis on voluntary resort to investigation, C., and arbitration by competent tribunals. Such voluntary resort with or without assistance from the gov. has been long estab. in all the well-organised Brit. industries. Trade boards supply a need in those less well organised. At the opposite extreme is the principle of compulsion. Australia and New Zealand are conspicuous among the countries which have adopted this principle. In Queensland the arbitral tribunal estab. by law has legislative functions, in the sense that its awards have legal effect even as respects employers and employees who may not have been involved in the dispute which gave rise to the award. C. machinery is now being introduced in the W. Indies and in other Brit. colonies parallel with the development, under official guidance, of trade union principles. Important changes in the machinery of C. have been made by most countries in the past twenty-five or more years, but no perfect system has yet been evolved. Far more disputes are settled by the voluntary machinery set up by the trade unions and organised employers for purposes of joint consultation than by any other agency; but cases do arise from time to time which call for mediation and where collective bargaining is out of the question. The Act of 1896 did little more than empower the Board of Trade to inquire and report, and it was not until 1911, when the Industrial Council was estab., that any attempt was made to systematise the application of the principle of C. embodied in the Act of 1896. But this body had no power to require disputants to refer to it, the voluntary character of the Act being maintained. In 1919, however, the Standing Industrial Court was estab. under the Industrial Courts Act, consisting of independent persons and representatives of employers and employees, to deal with such disputes as might be referred to it with mutual consent, or to investigate the circumstances if the Ministry of Labour deemed

inquiry to be desirable. Neither an award by the court nor the findings of an inquiry were made binding. In its original form the measure contemplated compulsory arbitration and the attachment of trade union funds for strikes against the decisions of the arbitrators. This was necessarily opposed by the unions, with the result that the voluntary tradition subsists. The National Arbitration Tribunal was constituted by the Ministry of Labour and National Service under the Conditions of Employment and National Arbitration Order, 1940, for the purpose of settling trade disputes which cannot otherwise be determined. Many advocates of C. think that almost any system of C. is useful in so far as it promotes investigation. The method of arbitration, on the other hand, leads to the formulation of agreed principles of determining wage questions. In Australia and New Zealand, for example, the system which began last century as a method of averting strikes and lock-outs has developed into one of wage regulation, based on a fairly scientific attempt to ascertain what wages can and ought to be paid. On the whole experience seems to reinforce the traditional Brit. method of voluntary C. and arbitration; but it also tends to strengthen the opinion that power should lie in the background to compel inquiry and that the tribunal should be such as would ensure its permanence and the continuity of its operations. *See also* ARBITRATION; INDUSTRIAL RELATIONS.

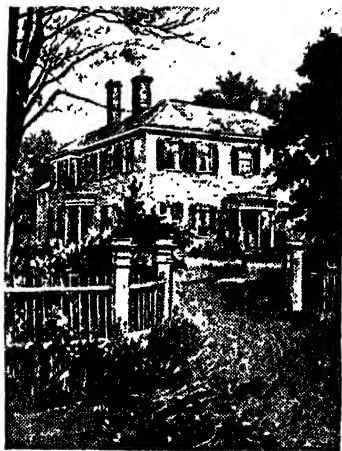
Concini, Concino, Marshal d'Ancre, *see* ANCRE.

Conclave (room), name given to the place of assembly when the cardinals of the Rom. Catholic Church meet to elect the pope. The name is also applied to the assembly itself. The regulations for such a meeting were laid down in 1274 by Pope Gregory X., who had suffered from the dilatoriness of election then prevailing. By them it was laid down that after ten days from the pope's death the cardinals present should assemble in the palace, and should be secluded until they had elected the deceased pope's successor. These regulations are still observed in the main; since most of the popes have d. at Rome the Vatican has been the usual place of the conclave.

Concord, in music, is an agreeable combination of sounds. They are the octave, fifth, third, and sixth, and their ratios are 2 : 1, 3 : 2, 5 : 4, 5 : 3. The first two are perfect and the last two imperfect.

Concord: 1. The cap. of New Hampshire, U.S.A., and co. seat of Merrimac co., on the Merrimac R. It has some fine public buildings, including a state house, built of granite, a state library, and the Margaret Pillsbury hospital. It has some celebrated white granite quarries, and manufs. of machinery, carriages, woollen, cotton, and leather goods, shoes, and pianofortes. Benjamin Thompson (Count Rumford), the statesman and natural philosopher, was a schoolmaster here in 1770-72, and it was the home of Mrs. Eddy, the discoverer and founder of Christian Science. Pop. 27,100. 2. The

co. seat of Cabarrus co., N. Carolina, on the S. railroad, 21 m. N.E. of Charlotte. It has textile mills. Pop. 15,500. 3. Tn. in Middlesex co., Massachusetts, on the Concord R., 23 m. N.W. of Boston, on the Boston and Maine railroad. The first skirmish in the war of Independence took place here on April 19, 1775, and an obelisk marks the spot where the first Brit. soldiers fell in the war of Independence. In it have lived many notable men of letters, including Emerson, Hawthorne, and Thoreau. Pop. 7900.



EMERSON'S HOUSE AT CONCORD,
MASSACHUSETTS

Concordance (late Lat. *concordantia*, agreement), name given to a book containing a citation of parallel passages in any work, and an alphabetical arrangement of words contained therein, with reference to the passages where they are found. Originally each group of parallel passages was called a concordantia, and the plural form concordantiae used for the collection of such passages, and the Gers. still distinguish between Cs. of things and Cs. of words. The first book to which Cs. were made was the Bible; the reason for this was the belief that was formerly held that all the parts of the Bible were in harmony with each other, and formed one divine whole. Anthony of Padua (1195-1231) is said to have been the author of the earliest C. we have, an anonymous work based on the Vulgate. The first authentic C. was that of Cardinal Hugh of St. Cher, a Dominican monk of the middle of the thirteenth century; he is said to have felt the need of such a work for his studies, and to have employed 500 monks to aid him in compiling it. The Cs. of Conrad of Segovia in the fourteenth century were based on the work of Hugh. The first Hebrew C. was compiled between 1437

and 1445 by Rabbi Mordecai Nathan, and printed at Venice in 1523 by Daniel Bomberg. It was entitled *Meir Natib* (Light of the Way), and served as the basis for the C. in four vols. of Marius de Calasio, a Franciscan monk, dated 1621. The C. of Johann Buxtorf, senior, is only useful to those acquainted with the Massoretic method. Cs. of biblical proper names have been pub. by G. Brecker (1876) and Schusslovicz (1878). In 1642 Conrad Kiroher of Augsburg produced a C. to the Septuagint, and Abraham Tromm one in 1718. The best modern C. on such lines is that of the Clarendon Press, Oxford, *A Concordance to the Septuagint and the other Greek Versions of the Old Testament, including the Apocryphal Books*. This was pub. in 1897, and a C. of proper names was added in 1900. The first Gk. C. to the N.T. is that of Xystus Betuleius (1500-54); other Cs. were produced by the Stephensens, father and son, and Erasmus Schmid, a Lutheran divine, whose work forms the basis of most subsequent Cs. A C. of the Gk. text with an Eng. version to each word, and the prin. Hebrew roots corresponding to the Gk. words of the Septuagint was produced in 1767 by J. Williams. The first C. of the Eng. version of the N.T. is that of T. Gibson (1535), and the first Eng. C. of the entire Bible was produced by J. Marbeck in 1550. Alexander Cruden's C., which is the basis of all modern Cs., was produced in 1737, with the title, *A Complete Concordance to the Holy Scriptures of the Old and New Testament, to which is added a Concordance to the Works called Apocrypha*. More recent Cs. are J. Strong, *The Exhaustive Concordance*, 1890; *The Oxford Cyclopedic Concordance*, 1910; R. Young, *Analytical Concordance to the Bible*, 1912; D. M. Miller, *The Topical Bible Concordance*, 1947. Since the value of a C. was discovered, the works of many other authors have been furnished with more or less complete Cs., notably Dante, Chaucer, Shakespeare, Milton, Shelley, Browning, and Dickens.

Concordat, term which originally denoted merely a compact or an agreement. Later it came to mean an agreement between the eccles. and secular authorities on matters which concerned both. From this usage came that which is at present the one most commonly meant; a C. is a compact between the pope, as head of the Rom. Catholic Church, and a temporal sovereign, having for its object the regulation of eccles. affairs within the dominion of the sovereign. A C. may take any one of three forms. The pope may consult with the gov. with which the C. is to be drawn up, and then issue a papal bull to regulate the affairs of the Rom. Catholic Church in that country; the contents of the bull are incorporated by the gov. in the law of the land. This was the method pursued in the C. drawn up in 1516 between Leo X. and Francis I. of France. Another method is for two identical separate acts to be drawn up; the pope signs one of these, and the sovereign the other. The first true C.,

that of Worms, in 1122, was drawn up in this way. The third and most common method is for a formal treaty to be drawn up after consultation, signed by plenipotentiaries on both sides, and ratified by the high contracting parties. Such a method was adopted in the Fr. C. of 1801. A C. is naturally concerned with such matters as affect both the Church and the State, as Church property, eccles. appointments, the rights of the clergy, regulation of public worship, etc. Various views are held as to the binding force of a C. Some secular jurists have held that such a compact can be annulled at will by the State; extreme ultramontanes have declared it to have no binding power on the pope. The common-sense view is that such a contract, like any other, is binding on both the contracting parties, with the proviso that no gov. can guarantee that the stipulations of a C. will be accepted by the next gov. in office.

Concord, Book of, or the nine Symbolical Books of the Lutheran Church, of which the Apostles' Creed, the Nicene and Athanasian Creeds are borrowed from the Rom. Catholic Church. The Lutheran books proper are the Augsburg Confession, drawn up by Luther, Melancthon, Jonas, and Bugenhagen (1530); the Apology for the Confession by Melancthon (1530); the Articles of Schmalkald by Luther (1537); the Smaller and Larger Catechisms of Luther (1529); and the Formula of Concord, drawn up by six Lutheran divines (1577). The whole was united by order of Elector Augustus of Saxony and officially recognised as the B. of C. at Presden on June 25, 1580. The first trans. of the B. of C. into Eng. was made by Ambrose, Socrates Henkel, and others in 1851.

Concorde, Place de la, famous public place in Paris, formed by Louis XV. in 1748 and adorned by a statue of that monarch. During the Fr. Revolution it was known as the Place de la Revolution, and later Place Louis XVI. It was here that Louis XVI. and his consort were guillotined.

Concordia, Rom. goddess of harmony and peace, to whom many temples were raised. The earliest of these was that of Camillus, erected in the Capitol (367 B.C.), celebrating the reconciliation brought about between the patricians and the plebs by the Licinian laws. The Senate frequently met in this temple, and here Cicero delivered his famous oration against Catiline. The goddess is represented on coins as a matron, holding in one hand an olive branch and in the other a cornucopia.

Concordia: 1. Tn. of Argentina, on the Uruguay R., in the prov. of Entre Rios. It has large slaughter-houses, iron works, brick factories, and flour mills, etc. The chief exports are Paraguay tea and salt meat. Pop. 28,000. 2. Small tn. in Italy, 34 m. N.E. of Venice, which is known for its anct. cathedral.

Concrete, building material composed of a cement (q.v.) which will enter into chemical combination with water forming a solid, mixed with definite proportions of

sand and broken stone or other binding materials. Thus the cement as it hardens binds these together, forming an artificial stone. Its value lies in the fact that it can be moulded to any required shape, and that its components can be obtained almost anywhere. Its manu. is neither costly nor difficult, and though its appearance is not equal to natural stone, yet since it can be used in many cases where natural stone cannot be laid, it is of great use in the building trade generally. Furthermore, because of its property of hardening under water, it is the chief material used in the building of culverts, piers, breakwaters, and dock walls, in fact in all places where it will be exposed to the action of water.

History.—C. as known to-day is a result of the discovery by J. Aspidin in the year 1824 of the material he called Portland C. because when set it resembled Portland stone in colour. Forms of C. were known to the ancients, but the binding materials they used were clays, or mortars made with lime or pozzolana, some of which had the property of setting under water. Most of these anc. materials, including that used by the Romans, would nowadays be called lime mortars, and Rom. cement, differing but little from that used by the Romans, was used in the manu. of C. up to about the middle of the last century. What is called C. to-day is made with a variety of Portland cement or high-alumina cement, all of which set in water.

Properties.—Strength, durability, and watertightness are the properties generally required of C., and these properties depend upon the following factors: (1) the quality and properties of the materials used; (2) the proportion of cement in the finished C.; within limits, the higher this proportion is the stronger is the C.; (3) the strength of the cement paste; the wetter the mixture the weaker the C. so long as the proportion of cement is not altered; (4) the even distribution throughout the mixture of different sized particles of aggregate and of the cement paste; (5) thorough compaction to produce maximum density; the lower the density of C. the weaker it will be; and (6) drying out slowly, and protection against frost and hot and drying winds during the hardening period. The reasons for these requirements, and methods of meeting them, are discussed in the following.

Aggregates.—The main requirements of the material to be added to cement to form C. are that it must be clean and inert. C. cannot be stronger, more durable or weatherproof than the materials with which it is made. If C. is to be strong and everlasting, to keep out the weather, and to be fire-resistant, it must be made of materials that have these properties. If C. is to be light in weight, a lightweight aggregate must be used. If C. is wanted that will reduce the passage through it of heat and cold, an aggregate and mixture that will produce a C. with this special property must be used. In constructional work the requirements are strength, durability, and watertightness. These properties are present in gravel and

sand, and, because these materials are found in most parts of the country and can be cheaply obtained, they are used for most C. work. Crushed hard stone is satisfactory. C. made with these materials weighs about 140 lb. per cub. ft. The aggregate must be clean. If it is coated with clay or loam or other foreign matter the cement cannot bind the pieces together, because it will adhere to the layer of foreign matter instead of to the surface of the aggregate.

Lightweight Concrete.—If lightweight C. is the primary consideration, then breeze, pumice, or foamed slag may be used. Lightweight Cs. are not waterproof, and must be rendered if they are used for external walls. If C. is to be resistant to the passage of heat it is best to use an aggregate that is not solid (such as breeze and foamed slag) and to use this aggregate in a C. that is not solid—that is, by omitting some of the fine material. Pockets of air are highly resistant to the transmission of heat from one face to another and, generally, the greater the proportion of voids in C. the greater its insulating properties. These Cs. are weaker than gravel C. C. to which aluminium powder or other chemicals are added has a high insulating value. The chemical reacts with the cement and produces gas bubbles, so that when the C. is hard it has a high proportion of voids. This class of C., known as cell C., can be made to weigh as little as 18 lb. per cub. ft. but has very low strength. Sawdust and wood-wool are also used to make lightweight and insulating C., usually in precast slabs.

Size of Aggregate.—The maximum size of the aggregate depends on the work in which it is to be used. For foundations or heavy work it may be up to 3 in. in size. For road work $1\frac{1}{2}$ in. is commonly used. Generally, however, in reinforced C. structures, all the aggregate should pass through a sieve with $\frac{1}{2}$ -in. meshes, or meshes $\frac{1}{2}$ in. less in size than the distance between the most closely spaced bars, whichever is the smaller. In thin walls the largest particles of aggregate should not exceed one-fifth of the thickness of the C.

Grading of Aggregate.—If C. is to be strong, watertight, and durable it must be dense. A cub. ft. of solid stone weighs about 160 lb. When it is in the form of coarse aggregate it weighs about 100 lb., so that more than one-third is voids. The cheapest material with which to fill these voids is smaller stones, and there must be smaller and still smaller particles to fill the spaces between all the sizes larger than the smallest. The more carefully an aggregate is graded the stronger a C. will be if all other processes are the same. The ideal aggregate is one comprising all sizes from the largest to the smallest in the proportions that produce greatest density, and this can best be obtained by dividing the aggregate into two sizes, the coarse and the fine. Coarse aggregate is all the material retained on a sieve with $\frac{1}{2}$ -in. meshes. Fine aggregate is the material that will pass

through a $\frac{1}{4}$ -in. sieve, with any excess of dust removed. If the coarse and fine materials are both properly graded, then a suitable aggregate is produced by mixing them together in the proportions of about 2 parts of the coarse aggregate to 1 part of the fine aggregate because the fine material is more than sufficient to fill the voids in the coarse. Fine aggregate is sometimes screened out and only the coarse material, say that between $\frac{1}{4}$ in. and $\frac{1}{2}$ in., used with the object of providing a C. that will have insulating value due to the presence of voids.

Proportions of Materials.—So long as the materials, workmanship, and manufacturing processes are the same, the strength of C. depends upon the quantity and the strength of the cement paste it contains. By proportioning is meant the selection of the quantities of cement and aggregate to be used in a C. or, more frequently, the quantities of cement, fine aggregate, and coarse aggregate, to produce a C. of a required strength.

When aggregates are separated into fine and coarse, and then mixed together in the proportions that will give greatest density, the combined bulk will be little, if any, greater than the bulk of the coarse aggregate alone, because most of the fine aggregate will fit in between the pieces of coarse aggregate. Thus a mixture comprising 1 part of cement to 6 parts of all-in mixed aggregate (a 1 : 6 mixture) will contain less cement than a mixture comprising 1 part of cement, 2 parts of fine aggregate, and 4 parts of coarse aggregate (a 1 : 2 : 4 mixture); in the 1 : 2 : 4 mixture most of the fine material will fit into the spaces between the coarse aggregate, so that the mixture will, in fact, be 1 part of cement to 4 to 5 parts of combined or 'all-in' aggregate.

For ordinary work C. in the proportions of 1 part cement, 2 parts fine aggregate, and 4 parts coarse aggregate (or 1 part cement to 4 to 5 parts 'all-in' aggregate) is suitable. For work that must be watertight, or where extra strength is required, the mixture should be 1 part cement, $1\frac{1}{2}$ parts fine aggregate, and 3 parts coarse aggregate (or 1 part cement to 3 to $3\frac{1}{2}$ parts of 'all-in' aggregate). For work of minor importance a mixture of 1 part cement to 3 parts fine aggregate and 6 parts coarse aggregate (or 1 part cement to 6 to $7\frac{1}{2}$ parts 'all-in' aggregate) is sufficient.

Strength of Concrete.—In ordinary good-class C. the following strengths may be expected. The figures are crushing strengths 28 days after placing C. made with ordinary Portland cement, ballast, and sand: 1 : 1 : 2 mixture, 4500 lb. per sq. in.; 1 : $1\frac{1}{2}$: 3 mixture, 3750 lb. per sq. in.; 1 : 2 : 4 mixture, 3000 lb. per sq. in. Where special precautions are taken to control the quality of C., these strengths can be considerably exceeded and strengths of 8000 and 10,000 lb. per sq. in. are fairly easily obtained.

Water Content.—Cement will not begin its chemical action of setting and hardening until it is wetted, and $1\frac{1}{2}$ hrs. or so after water is added the setting process becomes noticeable. The water

combines with the cement and makes a paste which coats the particles of aggregate and binds them together. The amount of water determines the strength of the cement paste and therefore of the C. so long as the same amount of cement is used. If the quantity of cement remains the same, the more water that is added the weaker becomes the cement paste and the weaker the finished C. If more water must be added to make the C. workable enough for the work in hand, then more cement must be added to keep up the strength of the cement paste if the strength of the C. is to be maintained.

Too little water will also make a weak C. because it may not be sufficient to enable the chemical action of the setting of the cement to proceed properly, for setting only goes on while the cement is moist, and stops as soon as the C. dries out. A good rule to follow is to use no more water than is necessary to enable the C. to be placed and compacted. A good average C. is obtained by the use of 6 gallons of water to a bag (112 lb.) of cement. Porous aggregates, such as broken brick, pumice, and foamed slag absorb some of the mixing water, and this must be allowed for by soaking the aggregates before they are mixed.

Mixing.—If the materials are mixed by hand the aggregate should first be measured and spread out on a clean mixing platform and the cement spread on top. The coarse material should be spread out first, followed by the fine material, and then the cement on top. After the materials have been mixed dry until the colour is uniform they should be shovelled to the shape of a saucer so as to retain water, and the water poured into the middle. The materials and water are then mixed by shovelling from the side to the middle, and then turning over the heap to a different part of the platform and back again until the water is evenly distributed.

Machine mixing is more efficient and cheaper than hand mixing, such machines generally being in the form of steel drums rotated by power. In machine mixing it is not necessary first to mix the materials in the dry state. Very small machines are fed by filling the dry materials into the drum by shovel; larger machines are charged by means of a skip or from an overhead bin. The water is added when the dry materials are in the drum. All except the smallest mixers are fitted with tanks with a ball-cock or other device which enables the correct quantity of water to be added to the batch.

Continuous mixers have separate hoppers for cement and aggregates which are taken by Archimedean screws to the mixing compartment from whence the mixed C. is discharged through a spout in a continuous flow. The size and rate of rotation of the screws determine the quantity of each material carried into the mixing compartment, and thus automatically proportion the mixture.

A recent innovation in Britain is the supply of ready-mixed C. At a central depot the dry materials are filled into a mixing drum mounted on a lorry chassis

and the water is filled into a tank over the drum. As the lorry, known as a 'truck mixer,' approaches the site the driver empties the water into the drum and causes the drum to rotate and mix the C. The drum is emptied by running the C. down a chute into a hopper or on to a platform.

Placing in Position.—If the site for a floor or road slab is muddy, hardcore should be rolled on to it to make a level surface, or 3 in. of lean C. (say 1 : 10) laid over it before the structural C. is placed. The site must also be brought to an even surface, as irregularities will cause variations in the thickness of the slab.

The depth of C. placed in each layer or 'lift' in walls and columns depends upon its consistency and the strength of the shuttering. Very stiff C. should be placed in lifts of 4 in. to 6 in. Wetter mixes may be placed in lifts of 2 ft. or 3 ft. so long as they can be properly consolidated. Wet C. exerts a side pressure similar to water, and it is probably true to say that most collapses of shuttering have been due to placing wet C. at too rapid a rate, when it is placed in small lifts the lower lifts have time to harden, or partly harden, and the pressure on the shuttering is reduced before fresh lifts are placed. Each lift of C. should be the same depth throughout the work, and the C. should be spread evenly in the shutters.

Consolidation.—Each lift must be consolidated and worked well into the layer below. In the case of stiff mixes, heavy rammers should be used. A piece of wood, or a reinforcement bar with the bottom bent at right-angles, is a useful tamping tool in confined spaces. For road and floor slabs, 6 in. by 3 in. timbers with handles fitted at each end may be used by two men, one on each side of the slab. Tamping must be continued until air bubbles cease to escape and a film of moisture appears on the surface; it is then discontinued.

The C. must be well spaded against the shutters in order to produce a dense face and to prevent 'honey-combing' of the surface, but the tamping must not be carried on to such an extent as to weaken the body of the C. by bringing an excess of cement to the face. C. should not be disturbed after it has begun to set, and for that reason the mixing, placing, and tamping of each batch should be finished in less than an hour after water has been added. Excessive trowelling or tamping brings neat cement and water to the surface, and this will set as a skin which will flake off if it is on a floor subjected to traffic, or crack if it is on a surface subjected to changes of temp. Excessive trowelling of wet C. is the commonest cause of 'dusty' floors.

Consolidation can be assisted by hammering the shuttering with a mallet, the vibration thus set up helping the pieces of stone to slip into place and also helping to produce a smooth face. Vibrating machines for consolidating C. are of three types, namely: (1) vibrators for attachment to the outside of the shuttering; (2) vibrators which are pushed into

the C.; and (3) plate vibrators which are placed on the C. so that the vibrations are imparted in a downward direction; these are generally used for floor and road slabs.

Construction Joints.—When concreting is stopped for more than an hour, a stop-board must be used to keep the edge vertical and the C. well tamped up to the board. Any scum must be removed before more C. is placed, and the new C. thoroughly tamped against that already in position. If the work has to be left until the older C. is hard, then the surface must be hacked to form a key for the new C. After hacking, a wire brush should be used to remove dust and loose material, the old surface thoroughly wetted and brushed over with a very thin coating of mortar mixed in the proportions of 1 part of cement to 2 parts of sand, and the fresh C. then placed. This applies to all cases where new C. is bonded to old.

Concreting under Water.—When C. is placed under water a tremie is used. This is a pipe with a funnel at the top and a valve at the bottom, and is sufficiently long for the funnel to be above water when the bottom of the pipe is resting on the bed of the sea or riv. The C. is fed into the funnel, and the pipe is raised as the level of the C. rises. Care must be taken to keep the pipe full of C. in order to prevent water from entering. If there is much movement of the water, such as occurs in a flowing stream, it is necessary to provide a cutler-dam so that the work can be done in the dry.

Guniting.—C. may also be placed by a cement gun. In this process C. is 'shot' on to an existing structure. The materials are mixed dry and fed to a hose through which they are forced by compressed air. When the dry materials reach the nozzle, water is added by a jet. Due to the force with which it impinges against the surface to be treated, gunite is very dense and waterproof, and is mostly used for repairing or strengthening structures built of C., brick, or other material.

Hardening.—Cement sets and hardens only in the presence of moisture, and when the mixing water dries out the setting and hardening stop. Setting and hardening will also stop if freshly placed C. is exposed to freezing temp., because the water will change to ice; further, when frozen C. is thawed out the surface will flake off, because when water changes to ice it increases in volume and causes disintegration. If C. is to harden properly it should remain moist and warm until it has gained the greater part of its ultimate strength. For normal purposes this period can be taken as seven days with ordinary Portland cement, four days with rapid-hardening Portland cement, and twenty-four hours with high-alumina cement. During these periods the C. must be protected against drying winds, hot sunshine, and extreme cold. C. should not be placed when the temp. is below 40° F., unless precautions are taken to prevent the C. falling below that temp. When the temp. does not fall below 30° F., the

addition of 2 lb. of calcium chloride per cwt. of cement expedites setting.

Surface Finish.—There are two main trends in the treatment of C. surfaces. One is to produce a surface that will need no, or very little, finishing after the shuttering is stripped, and the other is painting, rendering, brushing, or bush-hammering. Shuttering for the production of smooth surfaces should be of steel or plywood. The C. must be thoroughly spaded against the shuttering in order that the face of the C. shall be as free as possible from holes due to entrapped air and water pockets. If a smoother surface is required the C. can be rubbed with carborundum bricks or power-operated carborundum disks after the face has been made good. Ordinary oil paint is not suitable for use on C., because it is affected by the free lime in the cement. Paints specially made for the purpose are available in a variety of hues. Coloured and white Cs. are made with aggregates and cement of the desired colour. Generally the aggregate is crushed natural stone, and this is used with cement of the same colour.

When C. is tamped or vibrated a skin of cement and fine material is brought to the surface and the face of the work has the appearance of neat cement. If this skin is removed the aggregate will be seen on the face. To make the aggregate visible on the face of the work is the object of 'exposed aggregate' finishes. The methods usually adopted are scrubbing and hammering. In the scrubbing process the best results are obtained if the shutters can be stripped within 48 hrs., or at any rate before the cement is too hard to be brushed off. The scrubbing is done with a wire brush, using plenty of water, until the surface skin of cement is removed. If a hammer is used the work is best done when the C. is hard. For unimportant work C. surfaces can be improved by hammering off this and projections, filling holes with mortar, and giving the whole surface a brush coat of grout mixed in the proportions of 1 part of Portland cement to 3 parts of sand.

Floor Surfaces.—Hard-wearing floor surfaces, known as granolithic, are topplings 1 in. to 2 in. thick of a dense concrete made with crushed granite or other aggregate with a high resistance to abrasion. The usual method of hardening a C. surface is to apply a solution of 1 part of silicate of soda to 4 parts of water. The solution must be copiously brushed on with a soft broom, and three applications at intervals of twenty-four hrs. are desirable. The simplest way to make a non-slip C. surface is to form grooves in it or roughen it with a brush before it hardens. Another method is to sprinkle carborundum powder on the surface before it is hard, or iron filings may be mixed with the top in. or so of C.

Precast Concrete.—C. products are made separately in moulds. Almost every part of a building that is commonly made in wood or stone can be made in C., from members weighing many tons such as sectional bridges and blocks for harbour

wharves to roofing tiles, and include C. poles and posts, paving flags and kerbs, manholes, stairs and steps, and so on. Steel and wood are generally used for the moulds, but plaster piece-moulds and gelatine moulds are used for ornamental work. Power machines are used for the mass production of wall-blocks, paving flags, kerbs, roofing tiles, and other common C. products. See A. C. Davis, *Portland Cement*, 1934; J. Singleton-Green, *Concrete Engineering*, 1933-35; F. M. Lea and C. H. Desch, *The Chemistry of Cement and Concrete*, 1935; W. H. Glanville (ed.), *Modern Concrete Construction*, 1939; H. L. Childe, *Concrete Products and Cast Stone*, 1940.

Concrete, in logic, term opposed to abstract, usually defined as a term applied to or signifying persons or things as opposed to abstract terms, signifying qualities; thus a sweet taste is C., sweetness is abstract; red as a colour is C., redness is abstract. However, some logicians place adjectives apart as attributes.

Concretion, see under GEOLOGY.

Concubinage. Cohabitation of a man with a concubine is a very ancient custom. Among the Gks. married men were allowed to have concubines; the position of the latter was not utterly despised, and their children had some status, if recognised by their father. The Rom. law, too, recognised concubines; their position was in many cases respectable, but Augustus, to encourage regular marriages, passed the Lex Julia and the Lex Papia Poppaea, which enacted that only women of low rank should be chosen as concubines. The children of concubines were not legitimate, but were called natural, and their right of inheritance was very limited, though they were rendered legitimate if their parents afterwards married. In the O.T. times C. was permitted as a relief from a barren marriage, and was extensively practised. The ancients had laws which permitted a sort of informal marriage similar to a *morganatic* union. Christianity did not permit such irregular unions, and Constantine the Great was the author of legislation intended to check the practice. The E. empire also prohibited C. Under the law of France, if a man brings a concubine to stay in the same house as his wife, the presence of the former entitles the latter to divorce.

Concussion of the Brain, form of shock where the injury received has shaken the brain and reduced the patient to a state of stupor, without producing any mechanical injury to the brain or skull. Any severe blow on the head will cause concussion; the symptoms are complete unconsciousness, with pallid cold skin, and feeble pulse. This condition continues for length of time varying with the severity of the shock received, when the pulse becomes stronger and consciousness returns. Though the recovery from concussion is usually complete, such symptoms as loss of memory may remain for some time. The patient should be put to bed as quickly as possible with hot-water bottles, and should then be left alone. No stimulants should be given

unless specially ordered by the doctor in charge; and during the period of recovery all excitement is to be avoided.

Condamine, La, Charles Marie de, see LA CONDAMINE, CHARLES MARIE DE.

Condapilly (Kondapilli), small tn. and hill-fortress of India, Madras Presidency, on R. Kistna, 50 m. from Masulipatam. No longer important as a fortress, it manufs. small figures and toys from a light wood obtained near by (*Gyrocarpus Jacquin*). Pop. about 5000.



LOUIS I. DE BOURBON, PRINCE DE CONDÉ

Condé, Henry I. de Bourbon, Duc d'Enghien, Prince de (1552-88), son of Louis I., a Fr. Huguenot leader; he fought for Henry of Navarre under Adm. Coligny. To save his life after the massacre of St. Bartholomew he embraced the Catholic faith, but on the death of Charles IX. he recanted and went to Germany, where he raised an army and joined Alençon, 1575. Eventually he was taken prisoner and d. from the effects of poison supposed to have been given him by his wife, Catherine de la Tremouille.

Condé, Henry II. de Bourbon, Duc d'Enghien, Prince de (1588-1646), son of Henry I. and father of the 'Great C.' He was a Rom. Catholic, and in 1609 Henry IV. brought about his marriage with Charlotte Marguerite de Montmorency. To save his wife from the king who had also fallen in love with her, C. fled to Spain and remained abroad until after the assassination of Henry (1610). On his return he started an intrigue against Marie de' Medici, the regent, which resulted in his imprisonment. After his release he decided to adopt a policy of loyalty, and to this end fought zealously against the Protestants, and became one of Richelieu's most faithful adherents. He was made president of the Council of Regency when Louis XIII. d., 1643, and

his second son, Armand, was founder of the house of Conti.

Condé, Louis I. de Bourbon, Prince de (1530-69), fifth son of Charles de Bourbon, duke of Vendôme, and younger brother of Antoine, king of Navarre. He was the first to bear the famous title, and had a distinguished military career under Marshal de Brissac in Piedmont, at Metz while Charles V. was besieging it, and in the battle of St. Quentin. A supporter of the Huguenots, he was one of the leaders in the conspiracy of Amboise, designed to remove Francis II. from the Guise influence and make him acknowledge the Huguenot faith, and only the death of Francis saved his life. On the accession of Charles IX., Catherine de' Medici made him governor of Picardy. In 1562 he took command of the Huguenot army against the Guises and was captured at Dreux, but released again by the treaty of Amboise, 1563. When renewed trouble broke out C. was again leader, and after a brilliant fight at the battle of Jarnac he surrendered, and was treacherously shot.

Condé, Louis II. de Bourbon, Prince de (1621-86), the 'Great C.' an eminent and talented Fr. general. B. in Paris. Acquired during his education a taste for literature, which stood him in good stead at the close of his career. He bore the title of duc d'Enghien during the lifetime of his father; he defeated the Spaniards at Rocroi in 1643, Mersey at Nördlingen in 1645, and took Dunkirk for the Fr. in 1646. In this last year he succeeded to his father's kingdom and title, and since he had wedded Richelieu's niece in 1641, this accession to his power made him one of the most important personages in the realm. He at first took the side of the Court against the Parliament and the nobles, and brought back the young Louis XIV. to Paris in 1649. He imagined himself ill treated by Mazarin, however, and put himself at the head of the faction of the Petits Maitres; he was captured and imprisoned by Mazarin in 1650. After a year the union of the old and new Frondes brought about his release, and he marched upon Paris and fought an indecisive battle in the suburb St. Antoine. Many of his adherents left him, and he joined the Spaniards, who appointed him generalissimo of the Sp. armies. He fought for the Spaniards at Arras in 1654, Valenciennes in 1656, and Cambrai in 1657. He was defeated at the battle of the Dunes by Turenne in 1658, and was only restored to his rank in France by the peace of the Pyrenees in 1659. He was charged with the task of reducing Franche-Comté, which then belonged to Spain, to submission, which he succeeded in doing in the short space of three weeks. He afterwards fought the Dutch at Senefte, 1674, defeating the Prince of Orange (afterwards William III. of England), and in the following year drove Montemar out of Alsace. Four years later he retired to Chantilly, where he enjoyed the society of Molière, Boileau, La Bruyère and others, and d. at Fontainebleau.

Condé, Louis Antoine Henri de Bourbon, see ENGHEN, DUC D'.

Condé, Louis Joseph de Bourbon, Prince de (1736-1818), son of Louis Henry, duke of Bourbon (1692-1740); he joined the army at the commencement of the Seven Years war, and distinguished himself by his victory at Johannsberg, 1762. He was for some time governor of Burgundy and, when the revolution broke out, commanded the 'army of Condé' for the king, joining the Austrians until the peace of Campo Formio in 1707. He then went to Poland and fought for the emperor of Russia, afterwards going to Bavaria in the pay of England. In 1800 he settled at Malmesbury in England, but returned to France on the restoration of Louis XVIII. He was the author of an *Essai sur la vie du grand Condé* (1798).

Condekerque Branche, vil. situated on the N. coast of France, in the dept. of Nord. It is 3 m. from Dunkirk. Pop. 600.

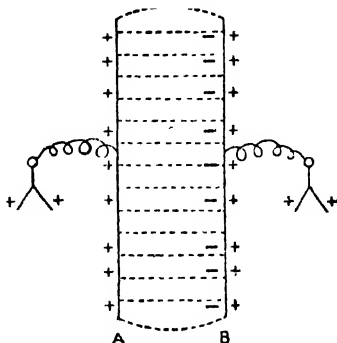
Condell, Henry (1757-1824), Eng. violinist and composer. He distinguished himself in the orchestras of the King's Theatre, Drury Lane, and Covent Garden, and composed overtures and incidental music for various plays and operas, including Fawcett's *Enchanted Island*, 1804; Reynolds's *Bridal Ring*, 1810; *Love Laughs at Locksmiths*, adapted by Colman, and *Aladdin*.

Condenser, apparatus for condensing steam or other vapour into the liquid form by introducing cold water into the vapour, or by passing the vapour through cold water. See STEAM ENGINE and TURBINES for the various forms of C.

Condenser, Electrical. A condenser may be defined as an arrangement by which the capacity of a conductor is artificially increased. It is shown in electrostatics that if Q is the charge of a conductor and V its potential, the ratio $\frac{Q}{V}$ is constant, and is called the capacity, C , of the conductor. Thus $C = \frac{Q}{V}$. Therefore any arrangement which decreases V while Q is kept constant increases C and is a condenser.

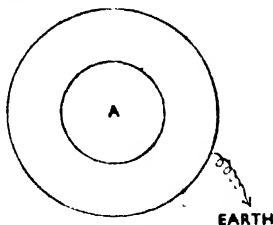
Explanation of the Action of Condenser.—Consider the simplest case of a condenser, namely, that of two parallel plates. Suppose A and B are two equal, parallel, metal plates, each of which is connected to an electroscope (see ELECTROSTATICS). Give A a positive electric charge Q , by connecting it to the terminal of a friction machine. When A is positively charged, it is given a certain positive potential. When B is insulated and brought up to A , its potential is lower than that of A . Thus the potential of A decreases, and its leaves close somewhat, whilst the potential of B increases and its leaves open. If B is earth connected, its potential is lowered to zero, and the potential of A is lowered still further by the presence of B , causing A 's leaves to close still further. Thus to raise the potential of A to its initial value it is necessary to give it

a further charge. The presence of B condenses the charge on A , if the potential of A is kept constant. The greatest effect is produced when B is earth connected. With this simple apparatus the important fundamental facts concerning condensers can be demonstrated.



It can be shown that as B is brought nearer to A , the leaves of A close further still, showing that its potential is decreasing and its capacity increasing. If the plates are close together, the capacity varies inversely as the distance between them. A is called the positive armature of the condenser, B negative armature, whilst the medium between A and B is called the dielectric. If a slab of a good insulator, say sulphur, is placed between A and B , the leaves of A close still further, showing that the capacity of the condenser depends on the dielectric.

Capacity of Plate Condenser.—Suppose that the plates are closer together so that the tubes of force from A all end on B as shown in the diagram, and that the dielectric is air. If the area of each plate is S , sq. cm. the capacity of the condenser (in farads) is $\frac{S}{4\pi d}$ where d cm. is their distance apart.



Capacity of Spherical Condenser.—A spherical condenser consists of two concentric spheres, of radii ' a ' and ' b ', $b > a$. Suppose that air separates the spheres, and that B , the outer sphere, is connected to earth. The capacity is $\frac{ab}{b-a}$.

Energy of a Condenser.—The energy of a condenser is $\frac{1}{2} QV$ (see ELECTROSTATICS). Since $C = Q/V$ the energy of the condenser can also be expressed in the alternative forms, $\frac{1}{2} CV^2$ or $\frac{1}{2} Q^2/C$.

Specific Inductive Capacity.—Faraday made numerous experiments with a spherical condenser to determine the effect of the dielectric on the capacity. He found that the capacity varied with the dielectric, and he called the ratio of the capacity when the substance was dielectric, to the capacity when air was dielectric, the specific inductive capacity of the substance. It is usually designated by K .

Practical Forms of Condenser.—For purposes of demonstration the Leyden jar is the most common form of condenser. The invention of the Leyden jar was the result of an accident. In 1746 a physicist, Cuneus, was electrifying water by holding a flask of water in his hand, and allowing a chain which was connected to the conductor of an electric friction machine to dip into the water. On taking the chain out of the water, he received a severe shock. It took him two days to recover from the effects. The news of this shock led to investigation which has resulted in the modern Leyden jar. The Leyden jar consists of a wide-necked bottle, coated both inside and out for about four-fifths the height with tinfoil. The mouth of the bottle is closed with an insulating cork, through which passes a metallic rod, terminating above in a knob, and connected below to the inner coating by a chain. The glass should be of a non-hygroscopic nature, and to ensure its dryness the exposed portions of the glass are covered with shellac varnish, which is less hygroscopic than glass. The two coatings of foil form the armatures of a condenser whilst the glass is the dielectric. The outer coating is usually earth connected, and a positive charge given to the inner foil by connecting the knob to the conductor of a friction machine.

Leyden Jars in Parallel.—This arrangement is obtained by connecting all the inner coatings together, and connecting the outer coatings to earth. If C_1, C_2 , etc., are the capacities of the jars and C that of the system, $C = C_1 + C_2 + \dots$

Leyden Jars in Series.—This arrangement is obtained by insulating the outer coatings by placing the jars on slabs of sulphur and connecting the inner coating of one jar to the outer coating of the next, and so on. With the same notation as above, in this case we have

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} + \dots$$

Seat of Electric Charge.—Benjamin Franklin showed that the seat of the electric charge is the dielectric. He formed a Leyden jar which could be taken apart. The inner coating can be lifted out of the glass, and the glass out of the outer coating, by means of insulated hooks. He charged the jar in the usual way, and then took it apart and tested the parts separately. He found that the glass

was the only part charged, showing that the seat of the charge is the surface of the dielectric.

A form of condenser for accurate work was devised by Lord Kelvin. It consists of a number of sheets of tinfoil insulated from each other by sheets of mica or paraffin paper. The odd sheets of foil, i.e., the first, third, fifth, etc., sheets are connected together, and to one terminal of the condenser. The other sheets are connected together, and to the other terminal of the condenser. During recent years the electrical condenser has made great strides owing to the popularity of wireless and the growth of cheap electricity. In wireless work the condensers used are of a very small capacity, ranging from 0.001 to 2 mfd. The small fixed condensers are made of small plates of brass foil about $\frac{1}{16}$ in. thick, separated by thin mica strips; the larger condensers use waxed paper as the dielectric, and are thus more bulky relatively than the mica condenser. Variable-air condensers are also used in wireless work. They are composed of aluminium vanes about $\frac{1}{4}$ in., separated by about the thickness of the vane. The vanes are mounted alternately on a fixed and a moving spindle, so that the area of one set overlapping the other can be varied from nil to full. The vanes were originally semicircular in shape, but with this type the capacity did not vary in direct proportion to the overlap, and this was remedied by shaping the vanes so that the capacity was proportional to the square of the angle of rotation of the knob of the condenser. In the modern power-house the improvement of the power factor is a big problem for the engineer, and the condenser affords him most material assistance. The condensers are usually connected parallel with one another and parallel with the applied load, so that the leading current taken by them will balance, totally or partially, the lagging current taken by the load. In overhead transmission condensers are used to protect switchgear and transformers from lightning. When the overhead conductor is struck the resultant surge of high voltage which flows along the line is simply absorbed in the condenser at the end of the line.

Condensing Engines, see under STEAM ENGINES.

Conder, Charles (1868–1909), Eng. artist, *b.* in London, son of a civil engineer, educated in England; was in the Australian Gov. service (1884–90) but in 1890 turned to art, studying at the Société Nationale des Beaux Arts, Paris. He attracted attention with his painting 'The Hot Wind' (1890). Developed an original decorative style, especially in water colours on panels of white silk, Watteau-like designs for fans, and charming pictorial scenes. *See J. Rothenstein. The Life and Death of Conder, 1938.*

Conder, Claude Reignier (1848–1910), colonel, Royal Engineers, and explorer, *b.* at Cheltenham. He studied in Italy, and at the University College, London, and the Royal Military Academy, Woolwich. He became head of the survey party at

Nabius, Samaria (1872), and took charge of the survey of Palestine (1872-78 and 1881-82), his *Memoirs* of which were brought out in seven vols., by the Palestine Exploration Fund in 1880. This work is of great value to the student of the O.T. and N.T. hist. In 1882 he was attached to the Egyptian expedition under Garnet Wolseley, and took part in the battles of Kassassin and Tel-el-Kebir. He worked in the ordnance survey of Plymouth (1887-94) and in the W. of Ireland till 1905. C. pub. many scholarly works on archaeological and philological subjects. These include *Tent Work in Palestine* (1878); *Syrian Stone Lore* (1886); *Altaic Hieroglyphs and Hittite Inscriptions* (1887); *The Tell Amarna Tablets* (1893); *The First Bible* (1902); and *The City of Jerusalem* (1909).

Condé-Smendou, com. in the arron. of Constantine, Algiers. It is noted for its wines. Pop. 17,000.

Condé-sur-l'Esaut, tn. of France, in the dept. of Nord, situated at the confluence of the Scheldt, and Hayne, 8 m. N. of Valenciennes. The princes of Condé took their name from this place. Pop. 6400.

Condé-sur-Noireau, tn. of France, in the dept. of Calvados, at the junction of the Noireau and Drouance, 33 m. S.S.W. of Caen. Pop. 4300.

Condillac, Etienne Bonnot de (1715-1780), Fr. philosopher, b. at Grenoble. He spent practically all his life on his estate of Flux, near Heaugency, engaged in philosophical studies, and d. there. His first notable work appeared in 1746, the *Essai sur l'origine des connaissances humaines*. This work, in conjunction with his *Traité des systèmes* (1749), outlines his theory. He explained almost everything by the law of association of ideas, and whilst allied to the principles of Locke, he disagrees with those of Descartes, Spinoza, Malebranche, etc. Sensation is, according to him, the only possible source of knowledge, and all intellectual processes may be traced back to sensation. The clearness and perspicacity of his writings obtained for him the post of instructor to the infant duke of Parma, the nephew of Louis XV. He wrote for him the seven instructional works, including a grammar, elementary books on the arts of writing, reasoning, and thinking, and a hist., and these form seventeen vols. of the complete works of C., pub. in 1798. His teachings exercised great influence in the eighteenth century, and were severely criticised in the early part of the nineteenth century. It was shown by Taine, however, that the modern trend of psychological and physiological research goes to prove that the ideas of C. are well founded. He lived as a recluse, and had Diderot and Rousseau for intimate friends. His works include, besides those already mentioned, *Traité des sensations* (1754); *Traité des animaux*, (1755); *Le Commerce et le gouvernement, considérés relativement l'un à l'autre* (1776). See L. Dewaule, *Condillac et la psychologie anglaise contemporaine*, 1892.

Condiments (Lat. *condire*, to season or pickle), any substances of pronounced

flavour used as seasoning agents, to give relish to food or stimulate the appetite. Many C. are essential. Among the chief are salt, vinegar, olive oil, sugar, and aromatic or pungent C., such as spices, mustard, pickles, pepper, and ginger.

Condition. In the law of contract (q.v.) the non-fulfilment of a C. *precedent* by one of the parties disentitles him from enforcing the contract against the other party. By a C. precedent is meant some act to be performed or some contingency to be fulfilled or some time to elapse before one party can be called on to carry out his part of the contract. For example, if A. agrees in writing to sell his business to B, and they verbally agree that the transfer shall be subject to the consent of A's partner, A cannot be forced to sell until A's partner does consent. Cs. may also be *concurrent*, i.e. each party must perform his agreement at the same time. For example, A. agrees to buy a slate quarry from B, and B agrees to purchase all slate from A: A cannot sue B for not taking slate unless he can show that he was ready to buy the quarry or had bought it. Sometimes the parties to a contract introduce a provision that the occurrence of an event shall discharge them mutually from further liabilities, e.g. that the happening of an accepted risk of a charter-party shall discharge the ship-owner from liability for failure to carry a cargo. Such provision is known as a C. *subsequent*. It is entirely a matter of construction, whether representations or alleged verbal stipulations in any particular can amount to Cs. Not every representation made prior to a contract can be called a C. Whether it be a C. depends on whether the court comes to the conclusion that such statement or representation was the *condition on which the other party contracted*. Cs. must be distinguished from warranties. A warranty is part of the contract itself, whereas a C. is something collateral to it. A breach of warranty only entitles the injured party to damages; the breach of a C. entitles the injured party to repudiate altogether. But the Sale of Goods Act, 1893, expressly provides that in certain cases Cs. shall be implied in a sale, which, if unfulfilled, shall entitle the buyer to repudiate. (As to these see SALE.)

Conditional Immortality, known in the U.S.A. as Annihilationism, is the doctrine that the immortality of the soul is not inherent in the race, but depends on faith and union with Jesus Christ. Its adherents maintain that the Bible invariably speaks of immortality as something to be hoped for, and as a future gift of God. They state that this gift is given by the assumption of a spiritual body after the second coming of Christ. They are thus opposed to the doctrine of Universalism, but not less so to that of the eternal misery of the wicked. These, they say, will undergo the great judgment and then pass through a period of punishment which will end in annihilation. Everlasting destruction or death is thus considered as the antithesis of the everlasting bliss or life of the blessed. The

best exposition of these tenets is given by Edward White in *The Life of Christ* (London), 1875, a somewhat different view being contained in S. D. McConnell's *Evolution of Immortality* (New York), 1901. In 1878 the C. I. Mission was founded to carry on propaganda work in the Brit. Isles.



CONDOR

Conditioned Reflex, term introduced by the celebrated Russian physiologist I. P. Pavlov, to describe certain nervous behaviour the investigation of which has thrown much light upon the activities of the brain. Pavlov noticed that the flow of saliva, for instance, which is normally caused by the taste of food in the mouth, can equally well be caused by the mere sight of food, as indeed is common knowledge; we often say the sight of such and such a luscious object 'makes our mouth water,' and the statement is literally true. The flow of saliva at the sight of food is a *conditioned reflex*. Pavlov showed by experiment that this simple instance could be paralleled in numerous interesting ways. Thus he found that flow of saliva could be produced in a dog by the mere ringing of a bell, the ringing of which had for several previous occasions been followed shortly afterwards by the appearance of food. The importance of a study of C. Rs. is that it enables us to understand better the real nature of intelligence, many actions hitherto ascribed to intelligence proving to be the results of conditioned reflexes. As an aid to the analysis of behaviour, the artificially produced conditioned reflex is of the utmost value, and it is largely employed in experimental psychology. See I. P. Pavlov, *Conditioned Reflexes*, trans. by Auer, 1927.

Conditioning, see GRADING AND CONDITIONING.

Condom, tn. of France, in the dept. of Gers, 25 m. N.N.W. of Auch, situated on a height above the Baise. Formerly it was

the cap. of the large dist. Pays-de-Commois, and was an episcopal see, of which Bossuet was bishop. There is a good trade in brandy, wine, grain, and flour. Pop. 6300.

Condonation, in law, the conditional forgiveness by one spouse of an offence which the other spouse has committed in breach of the marriage vow. The condition is that the party if forgiven will not repeat the offence. C. may be either expressed in writing or implied by conduct. It is a complete bar to proceedings for divorce so long as the condition remains unbroken.

'Condor,' Brit. gunboat, which was commanded by Lord Charles Beresford (then captain) at the bombardment of Alexandria in 1882. Another C. of the R.N. went down with all hands near Honolulu in 1901.

Condor (from Peruvian *cuntur*), *Sarcorhamphus gryphus*, large S. Amer. vulture, found particularly in the region of the Andes, especially in the higher regions, where they make their nests at a height of from 10,000 to 15,000 ft. The general colour is black, and in both sexes there is round the lower part of the neck a white ruff of feathers. Above this the head and neck are bare. The C. feeds on flesh, to obtain which, in default of carrion, he will attack small or aged animals.

Condor Vine, see CONDURANGO.

Condorcet, Marie Jean Antoine Nicolas Caritat, Marquis de (1743-94), eminent Fr. philosophical and mathematical writer, b. at Ribemont, near St. Quentin, of a very anct. family. He was educated at the college of Navarre, and distinguished himself especially in mathematics. He wrote in 1764 his *Essai sur le calcul intégral*, and in 1767 his *Mémoire sur le problème des trois points*. These works, afterwards pub. together under the title of *Essais d'analyse*, and dedicated to the Academy of Sciences, procured for him in 1769 the distinction of a seat in that institution. The facility with which C. treated the most difficult mathematical studies was remarkable, and until 1792 his output was large, as, in addition to the works already mentioned, he contributed frequently to the transactions of the learned societies of St. Petersburg, Berlin, Bologna, Turin, and Paris. His *Éloges des académiciens morts avant 1690* (1773) was immensely popular, and gained for him in 1773 the honour of being made perpetual secretary to the Academy of Sciences. He won the prize offered by the Academy of Berlin in 1777 by his theory of comets, and owing to his acquaintance with D'Alembert he wrote many articles for the *Encyclopédie*. He was not elected a member of the Fr. Academy till 1782, owing to the aversion which was felt for him by Maurepas. When the first Fr. revolution broke out he sided with the people, and was elected deputy to the legislative assembly of Paris. He was soon appointed secretary, and in Feb. 1792 was made president. The legislative assembly was merged in the national convention in Sept. 1792,

and C. was there in sympathy as a rule with the Girondist party. He was in favour of the punishment of Louis, but not of his death, as he believed in the abolition of capital punishment. On the fall of the Girondist party he attacked the new constitution, and was denounced at the Bar on July 8, and later accused of being an accomplice of Brissot. He was protected by Mme Verney for eight months, but learning that she was in danger of death for harbouring him, he fled from Paris, but was recognised and arrested at Clamat. He was found dead in his cell, having probably taken poison, which he always carried about with him. His best-known work was written whilst he was with Mme Verney, *Esquisse d'un tableau historique des progrès de l'esprit humain* (c. 1795). This book is full of enthusiasm for liberty, and maintains the perfect equality of the sexes and the inherent possibilities of mankind. C. was a free-thinker, and had a high standard of virtue. In both his public and private life he was blameless; his application of the problems of philosophy to mundane affairs and the betterment of social conditions is the distinguishing feature of his polemical works.

Condottieri (It. leaders), name given to the captains of those bands of soldiers which overran Italy and held the military power there in the fifteenth century. They were composed of professional fighting-men who would serve under any one who held out prospects of plunder, the idle riff-raff of the country, and criminals fleeing from justice, with a proportion of men who had lost their all in the wars. Naturally with such ingredients the chief objective of the armies was always plunder; it was immaterial to the combatants which of the contending govs. gained the victory. Though most of the C. of this period were simply glorified brigands, one or two of them were faithful to one party, notably the Englishman, John Hawkwood, who was always on the side of the Guelphs. After some time the C. became heads of organised bodies of men, and sev. attained much power and position. Albéric de Barbiana was a powerful influence, and Attendolo Sforza made himself king of Milan, and handed down his sovereignty to his descendants. The decadence of the C. followed, however, and, as might have been expected from the composition of the armies, many so-called battles were fought with hardly any loss of life. At the battle of Zagonara (1423), only three lives were lost, and at those of Castracaro and Molinella none at all.

Condrieu, small tn. of France, in the dept. of Rhône, situated on the R. Rhône, 20 m. S. of Lyons. It is noted for its wine. Pop. 2200.

Conductance (in electrical engineering), conductive capacity, for which the *mho* is the unit, the reciprocal of resistance.

Conduction of Electricity. Electricity can be transmitted through matter, and the process of transfer is called C. In solids and in liquid metals C. is due to a flow of electrons, or charges of negative

electricity, from points at low potential to ones at higher potential. The electrons (*q.v.*) are furnished by the atoms of the material, and the atoms as a whole take no part in the movement. Metals contain many electrons that are free to move with relatively little hindrance from the parent atoms, and such materials are therefore good conductors. In the other solids the electrons are more tightly bound to the atoms, and C. occurs less readily. Increase of temp. frees more electrons, so the conductivities of non-metallic substances increase with rising temp., whereas those of metals fall. C. in gases and in many liquids involves not merely a flow of electrons, but of atoms or groups of atoms as well. When a quantity of the salt sodium chloride, for example, is dissolved in water the atoms are not electrically neutral, but the chlorine atoms have each gained an electron and become negatively charged, while the sodium atoms have each lost one and become positively charged. These charged atoms, or ions, can move through the liquid and transport electricity (see ELECTROLYSIS). In gases the molecules can become charged, under suitable conditions, by gaining or losing electrons, and so the gases also become conductors. As gases are ionised with some difficulty, however, they are, under normal circumstances, almost completely non-conducting. They are more readily maintained in a conducting state at high temps., as in the electric arc, or at low pressures, as in electric discharge lamps. C. can also occur in a vacuum, as a stream of electrons, if a suitable source of these is provided (see VACUUM TUBES).

Solids differ enormously among themselves in their electrical conductivities, good conductors such as the metals silver, copper, and aluminium at ordinary temps. having conductivities millions of millions of millions of times as great as those of so-called insulators such as sulphur, rubber, and paraffin wax. At very low temps. certain metals such as lead become almost perfect conductors, and if a current is set up in a ring of a metal in this superconducting state the current persists for a considerable period without any further energy being supplied to it. In all other cases the flow of a current through a conductor is accompanied by a loss of energy as heat, and a continuous supply of energy is required to maintain the current. The production of heat is sometimes useful (*e.g.* in electric radiators or incandescent filament lamps). Sometimes it represents mere waste, as in the heat generated in supply mains. To reduce these losses the mains are made of good conductors (copper or aluminium). The heat losses can also be reduced if the power is transmitted at high voltages, since for any required power the current is then smaller. For this reason the transmission of power over long distances is usually at many thousands of volts (in the Brit. Grid at 11,000, 33,000, or 132,000 volts). The chemical changes that are caused by the flow of current through solutions are of value for the

production or purification of certain materials, and for electroplating (see **ELECTROLYSIS**). A magnetic field (see **MAGNETISM**) is always present in the space around a conductor in which a current is flowing, and the generation of electric current and many of its uses depend upon this fact.

A current that flows always in the same direction in a conductor is called a direct current (D.C.), and one whose direction is periodically reversed is an alternating current (A.C.). The current in the grid is A.C. of fifty cycles; that is, it flows fifty times per second in each direction, reversing its direction 100 times per second. Because the magnetic field produced by A.C. is continually changing, and interacts with the current in the conductor, the behaviour of A.C. is more complex than that of D.C. (see **ELECTRICITY**, *Electromagnetic Induction*). A.C. possesses certain advantages, however. In particular its voltage can be changed at will by means of transformers (q.v.). It can therefore be generated at moderate voltages, stepped up to a higher voltage to reduce heat losses during transmission, and stepped down to lower and safer ones for use in motors, in factories, and for domestic purposes.

Conduction of Heat. Heat may be transferred in three ways; by radiation, by convection, and by C. Radiation is a process of transference of energy by a wave-motion in the ether, and is the same process as that by which light is transmitted. It can occur in a vacuum as well as through some kinds of matter. Convection occurs in fluids only, and in this process the material is heated at one point and then caused to flow to another where it gives up its heat again. The flow may be due to the expansion of the material, as in the convection currents up a chimney below which a fire is burning (natural convection), or may be caused by the action of a fan or pump (forced convection). C. differs from convection in that the flow of heat is unaccompanied by a flow of matter, as when a poker that is heated at one end in a fire becomes warm at the other end. It may occur in gases or in liquids, but is of more importance in solids. Metals are good conductors of heat, and owe their high thermal conductivities to the presence of free electrons, so the best conductors of electricity are also the best conductors of heat. Good conductors are essential for such articles as steam boilers, domestic cooking utensils, etc., while poor conductors are required for house walls, furniture, and clothing, where it is desirable to limit the transfer of heat. The thermal conductivities of air and other gases are low, so porous and fibrous materials such as felt, asbestos, and woollen materials, serve as relatively good insulators of heat on account of the high proportion of air contained in their interstices.

Conductor, in music, the director of a chorus or orchestra. The practice was first introduced into England by Spohr at a Philharmonic concert in London in

1820. Previously, the first violinist set the time, while the C., seated at a piano-forte or harpsichord, accompanied the performers with a few leading chords. An orchestra is now invariably led by a C., who faces the performers and beats time with a baton. A good C. must have first studied his music so as to be thoroughly familiar with the score. He must realise the possibilities of all the voices and instruments under his direction and be able to bring out the best that is in them. Above all, he must be a good musician and have interpretative talent. The C. has to rehearse his performers beforehand, separately and together, so that they become familiar with his methods and his intentions, and at public performances can carry out his instructions by watching his eyes and his movements. Many great musicians, such as Haydn, Mozart, Beethoven, Wagner, etc., have conducted their own work, but creative genius is not essential to a great C. The idea of interpretative conducting originated in the first half of the eighteenth century, probably with Stamitz (1719-61). Among famous Cs. may be named Liszt, Berlioz, von Bülow, Costa, Richter, Nikisch, Mottl, Mahler, Paur, Sucher, Hallé, Strauss, Ysaÿe, Sousa, Weingartner, Wood, Hamilton Harty, Dan Godfrey, Beecham, Toscanini, Stokowsky, Furtwängler, and Boult. See Sir A. Boult, *A Handbook on the Technique of Conducting*, 1937; D. Brook, *Conductor's Gallery*, 1945.

Condurango, or **Cundurango**, name applied to sev. species of *Asclepiadaceæ* found in S. America, but especially to the plant *Marsdenia C.* (condor vine). The bark yields a drug used as a remedy for snake-bites and chronic dyspepsia.

Condyle, rounded eminence in a bone which serves to articulate it with another bone. Such structures occur in the femur, the humerus, the jaw, and the occipital bone.

Condyloma (plural *condylomata*), wart-like growth or tumour near the genital organs or the anus. It may be pointed, or, in the case of syphilitic C., broad, flat, and moist.

Condylura macroura, species and genus of the New World moles, is an insectivorous mammal of the family Talpidae. The animal is about 7 in. long, 2½ in. being taken up by the tail, whence the name long-tailed condylure; at the end of the snout there is a curious radiating structure from which the creature is sometimes called the star-nosed mole. The fur is a deep lustrous brown above, lighter beneath; in habit the condylure is a burrowing animal, and its diet consists of worms, insects, and their larvæ.

Cone, surface generated by a straight line which passes through a fixed point and is intercepted by the circumference of a fixed curve. The moving straight line is called the generator, the fixed point the vertex, and the fixed curve the directrix. The term is also applied to the space enclosed by the curved surface and

the fixed curve, and often refers to a right circular C., which is defined by Euclid as the solid figure formed by the revolution of a right-angled triangle about one of the sides containing the right angle. The side about which the triangle revolves becomes the axis of the C., and its length becomes the altitude; the circle described by the other side containing the right angle becomes the base. An oblique C. is one in which the base is not at right angles to the axis. Some of the characteristics of a conical surface are: All planes tangential to the curved surface pass through the vertex; the curved surface is 'developable,' that is, it can be unrolled to form a plane, or conversely, a plane surface can be wrapped round a C. without rupture or wrinkling. The curved surface when unrolled becomes a sector of a circle whose radius is the slant height of the C. Its area is one-half the slant base multiplied by the perimeter of the base. The volume of a C. is one-third that of a cylinder with the same base and height; therefore it may be measured by multiplying one-third of the height by the area of the base, the area of the base being πr^2 , where $\pi = 3.14159 \dots$ and r = the radius of the base. Similar Cs. are those in which the axes and the diameters of the bases are proportionals. A truncated C. is formed when the upper part containing the vertex is cut away by a plane parallel to the base. In machinery the term C. is applied to a truncated surface tending to converge to a point.

Conegliano, tn. of N. Italy in the prov. of Treviso. 35 m. N. of Venice. It has a fine cathedral, containing an altar piece by Cima (1492), the ruins of a castle, and a loggia with sculptural monuments of Dante, Victor Emmanuel, and Garibaldi. Pop. 15,800.

Conegliano, Giambattista da, *see* CIMA.
Coney (Lat. *cuniculus*; Gk. *κονικλος*, a rabbit), name for rabbit, which is not now commonly used. The word occurs in the Bible as a translation of Hebrew *shaphen*, which is probably the *Hyrax syriacus*.

Coney Island forms part of the bor. of Brooklyn, New York city. It stands at the entrance of New York harbour, on the S. shore of Long Is. It is 5 m. long, its greatest breadth being three-quarters of a mile. It has a fine beach, and is a very popular summer resort. There is a continual service of steamboats between it and New York, which is 11 m. distant, and it is reached by many electric and steam railroads. It is divided into sev. dists.—W. Brighton, Brighton, Sea Gate, and Manhattan Beach, the cheaper amusements being at W. Brighton. There are sev. bathing pavilions, and a tubular iron pier, 1000 ft. long.

Confarreatio was one of the three Rom. forms of marriage. It was the only one which was invested with the sanctity of a religious performance; an offering was given to Jupiter, and bread made of spelt (*panis farreus*) was eaten. The priest spoke certain sacred words over the couple in the presence of ten witnesses. C. is supposed to have been confined to

the patricians, and certain offices in the state could only be held by persons whose parents had been so married.

Confectionery (Lat. *confectio*, a preparation, from *conficere*, to make up). C. is of two kinds. (1) sugar C. and (2) flour C. Sugar C. means sweets in which sugar is the main ingredient. They consist either of sugar in very fine crystal form dispersed in a sugar solution and flavoured, i.e. chocolate *crèmes*, fondants, etc., or there may be sugar maintained in a solution of a careful blend of the different types of sugar, i.e. boiled sweets, toffees, caramels, etc. Fats, milk, nuts, etc., are employed to obtain a variety of forms. Before the nineteenth century sweets and candies were the monopoly of apothecaries, who made them to hide the taste of their drugs. Sweets were at first made by hand, but by the middle of the nineteenth century machinery was introduced for many of the operations, such as mixing and rolling. Flour C. consists of pastries and fancy cakes having as their basis flour but sweetened and mixed with various dairy products such as butter, eggs, etc. These, although now being made more and more on a large scale, are usually made by bakers at local shops. *See also* COCOA and CHOCOLATE.

Confederate States, name adopted by those S. states of the N. Amer. Union which seceded and formed an independent union at the end of 1860 and beginning of 1861. The name stressed the profounder cause of the Amer. Civil war, which was to see their rise and extinction. It was for the vindication of state rights against the Federal Gov. of the N. (*see* CONFEDERATION) that the S. states seceded, though the vital issue was the question of slavery. The eleven C. S. were, in order of secession, S. Carolina, Mississippi, Florida, Alabama, Georgia, Louisiana, Texas, Virginia, Arkansas, Tennessee, N. Carolina, the first in Dec. 1860, the last in May 1861. The president was Jefferson Davis (q.v.); the vice-president, Alexander H. Stephens; and the secretary of state, Judah P. Benjamin. The seat of the gov. was at Richmond. The constitution, adopted on March 18, 1861, based on the U.S.A. constitution, varied in freer independence to the separate states, in the right of the Cabinet to seats in the two Houses of Congress, in the prohibition of protective tariffs or bounties, and in the avowed upholding of the institution of slavery and rights of property in slaves. The inherent weakness of the C. S. lay in their numbers, about half of those of the N. states, in railways, and in finance, and, moreover, they were crippled by the overwhelming naval superiority of their antagonists. The brilliant military capacity of their generals alone kept the war going as long as it did. *See* UNITED STATES, *History*.

Confederation, political term, contrasted with or opposed to federation, for a form of union of individual states or societies. It insists on the individual independence of each state or society in a common union, while federation insists on the supremacy of the common gov. Thus the Brit.

Empire, as at present constituted, is a C., as was the Ger. C. estab. at the Congress of Vienna, 1815. The distinction is well illustrated by the Ger. terms *Bundesstaat*, a bond of states or federal state, and *Staatesbund*, a states bond or confederation. The Amer. Civil war was fought, not only on the slavery question, but on the profounder question whether the union should be that of confederate or federated states. An apt example may be taken from ordinary leagues or societies which, as formed for a common purpose, may be regarded as confederate so long as they are answerable only to themselves for the methods they adopt for attaining that purpose. But although this form of association between states, in which the general gov. is dependent upon the regional govts., has often been described as a C., and the principle of its organisation 'the confederate principle,' it is an unsatisfactory description. The terms resemble 'federation' and 'federal' too closely for the distinction to be obvious; and there is no uniformity in political practice to support it. It is true that the term C. has been used in constitutions which did embody the principle of subordination of a general gov. to regional govts. Thus, as we have seen, it was used in the Articles of Confederation of 1777 (United States); in the Union of Utrecht (constitution of United Netherlands); in the constitutions of Switzerland from earliest times; of Germany from 1815 to 1867; of the N. Ger. C. of 1867 to 1871; and of the Ger. Empire from 1871 to 1918. It was adopted by the seceding states in America when they called themselves the Confederate States of America, and this use of the term seems to give it weight because these states had deliberately rejected the federal principle in its favour. But it is to be noted that immediately after styling themselves 'the people of the Confederate States' they declared that their object was to form a permanent federal gov. The terms are treated as interchangeable in the Swiss Constitution of 1874, which is headed 'Constitution fédérale de la Confédération Suisse.' The authors of *The Federalist* itself did not distinguish between the two terms, although they distinguished between the two principles involved. To increase the confusion the Canadian Constitution, which when it is not federal is unitary, describes the gov. it sets up as a C. But if the use of the term C. is linked with the principles of the Articles of Confederation of 1777 and of the Confederate States and of the Ger. Cs., its meaning may be kept distinct. See also FEDERAL STATE. See K. C. Wheare, *Federal Government*, 1946.

Confederation of the Rhine, name given to the union of the states which seceded from the Ger. empire in 1806. In that year the first Ger. elector, arch-chancellor of the empire, announced to the diet that he had appointed Cardinal Fesch, an uncle of Napoleon Bonaparte, as his helper and successor. This act was not in accordance with the constitution of the empire, and accordingly sixteen Ger. princes

signed an act of C. at Paris on July 12, 1806, by which they formally separated from the emperor and the empire. They invited the other states to join their C. Napoleon adopted the title of protector of the C. of the R., and instructed his ambas. to announce that his rules would not acknowledge a Ger. empire. Many princes and counts were subjected to the princes of the C. by meditation. In 1806 the elector of Wurzburg the elector of Saxony, and the five Saxon dukes joined the C. By the year 1808 many other princes and rulers were enrolled, including the two princes of Schwarzburg, the kingdom of Westphalia, and the dukes of Mecklenburg-Strelitz and Mecklenburg-Schwerin. The confederacy at the time of its greatest power extended over a space of 125,000 sq. m., with 14,600,000 inhab.; after Napoleon's Russian campaign (1812) the power of the C. declined, and the whole structure fell to pieces.

Conference, English parl. procedure, the meeting which is sometimes held when the two Houses of Parliament disagree over a Bill. Delegates are chosen from each House to discuss the provisions of the Bill with a view to reconciliation. The House which has possession of the Bill at the time must be the one to propose a C., and the subjects thereof must be stated; the place and time of the C. are always determined by the House of Lords. The delegates, who are called managers, usually merely present the reasons for the course of action which each House proposes to take; these reasons have been formerly prepared by a committee, and no other speeches are delivered. A free C. is one at which the managers are allowed to influence the other side by speeches of their own. Such a C. is only held after two ordinary Cs.

Confession, L'Isle de la, see FAIRBANKS. **Confession**, or more specifically **Auricular Confession**, is the disclosure of sins to a priest of the Church for the purpose of obtaining absolution. The practice was ordained by the early Catholic Church of a public C. of three mortal sins; these were murder, idolatry, and adultery. About the time of Pope Leo I. (440-61) the list of mortal sins was extended so as to include all crimes which under the Rom. law were punishable by death, exile, or severe corporal punishment. We should note however that there was a distinction between C. in itself to a priest and the public *exomologesis*, or penitential discipline for crimes. By the fourth General Lateran Council of 1215 it was laid down that it was the duty of every faithful member of the Church who had reached years of discretion to confess his or her sins to the priest at least once a year. This is still binding upon Rom. Catholics. The great difference between the ant. and the modern C. is that formerly great sins were to be confessed publicly and publicly atoned for, whereas now great emphasis is laid on the seal of secrecy. C. is practised by the Rom. Catholic, the Gk., and all oriental churches, and also by an Anglican section.

Confession, in law. If the accused at his trial volunteers an unqualified C., that is conclusive evidence against him, but in trials on a capital charge he is generally advised to withdraw such a C. and plead not guilty. A C. made elsewhere than before a judge or on summary proceedings before justices may be conclusive, but is only admissible in evidence where proved to have been made freely and voluntarily; and a C. is not free and voluntary if made as a result of some improper threat or inducement of a temporal nature held out by a person in authority, such as a committing magistrate, a police constable, or the prosecutor. The accused's master would not be a person in authority unless the offence was committed against him. A C. following on a statement by a person in authority to the accused that he need say nothing to incriminate himself, but that anything he might say would be used against him is admissible in evidence. A sacramental C. to a priest would probably be privileged from disclosure. Although a C. may be inadmissible, any facts discovered thereby, and so much of the C. as relates to those facts are admissible. In arraignment, if the accused pleads guilty, no further proof or trial is necessary and the court proceeds to judgment on his 'own confession.'

Confessional, place in the Rom. Catholic churches where the priest sits to hear the confession of penitents. As a rule Cs. are not part of the church structure, but are movable wooden boxes or stalls, entered by means of a door or curtain and having on either side gratings or openings beneath which there are steps for the penitent to kneel upon, the object being to keep the penitent in view of the public, the priest remaining hidden. The term was originally applied to the burial-places of martyrs (who had 'confessed' Christ) and later to their tombs in the churches. In the Middle Ages very strict rules were enforced with regard to the C., scandals having arisen, and in many places confessions were heard in the chancel of the church. Cs. in the Anglican Church were condemned in 1900, when the case of *Davis v. Hinde* (vicar of the Annunciation at Brighton) was tried in the consistory court of Chichester before Dr. Tristram. See C. Y. Sturge, *Points of Church Law*, 1907.

Confession and Avoidance, in the language of pleading, means an *admission* by one party of the facts alleged against him by the other party, coupled with counter-allegations of fresh facts going to show either some justification or excuse, or a discharge or release, so as to *avoid* the legal effect of the admission. A plea in C. and A. may be used either in the defence to a statement of claim or in the plaintiff's reply to a counterclaim. A party pleading in C. and A. is not thereby prevented from putting in a separate plea called a *traverse* denying the facts confessed.

Confession of Augsburg, see AUGSBURG, CONFESSION OF; CONFESSIONS OF FAITH.

Confessions of Faith, reasoned statements of the religious beliefs and doctrines of a particular church or body. The anct.

Christian C. of F. are more usually called creeds, under which heading they are treated. Modern confessions begin more or less with the Reformation, when the leading Protestant reforming bodies formulated their doctrines. The first of these is the Confession of Augsburg, 1530, drawn up by Melancthon and revised by Luther, who desired to define his position not only towards the Rom. Catholics, but also towards the followers of Zwingli. This was presented to Charles V., who had summoned the diet of Augsburg to offer a fair hearing to all the religious parties of the empire. It expounded in plain teaching the doctrine of God and of the Son of God; of original sin and of justification; it also dealt with the marriage of the clergy, invocation of saints, the celebration of the mass, etc. It was originally intended as a statement of belief for Saxony only, but was agreed to and signed by a number of other Protestant cities and princes. In its articles it attempted to show that it differed in its statements from current doctrines only so far as it intended to maintain the original purity and teaching of the early Christian Church. Among other things it rejected transubstantiation. An answer to the confession from the Rom. Church brought Melancthon's Apology, which was presented to the emperor but not received. Both the confession and apology were pub. in 1531. The Articles of Schmalkald were drawn up by Luther in 1536, the Confession of Württemberg in 1552, and the Formula of Concord in 1580; together with the Augsburg Confession they formed the body of the Lutheran C. of F. A separate confession, Zwinglian in tendency, was presented at Augsburg by Strasburg, Constance, Lindau, and Memmingen, the *Confessio Tetrapolitana*; but the Zwinglian position was more clearly defined by the Confession of Basle, 1534, and the First Helvetic Confession, 1536. Calvinism was formulated in 1559 by the Gallican Confession, presented to Francis II. and Charles IX. The Second Helvetic Confession, strongly Calvinistic, revised in 1564, was accepted widely, in Switzerland, Hungary, France, and Scotland, as an authoritative statement of the doctrines of the reformed churches. In England Henry VIII. held a convocation in 1536, at which ten articles were drawn up aiming at a compromise between the old and new theology. In 1538 a conference was held at Lambeth with envoys from the Lutherans; thirteen articles were formulated, but the Catholic reaction followed with the Statute of the Six Articles, 1539. In 1549 Crammer required all preachers to subscribe to the Articles of Religion, chiefly drawn up by himself. In 1552 they were revised, and as the Forty-two Articles held the ground till the revision as the Thirty-nine Articles of the Church of England, 1563, by Archbishop Parker and Guest, bishop of Rochester; the final revision was in 1571. In 1647 the Westminster Confession, strongly Calvinistic, with predestination as its main characteristic, was drawn up. The clergy of the Eng. Church withdrew, and the In-

dependents took little share in it. It was Presbyterian throughout. It was sanctioned by the Scottish parliament in 1640, and enforced throughout the United Kingdom. The Baptists issued a Vindication of the Truth as a formulary of their teaching, they having been excluded from the conference which drew up the Westminster Confession. The latter, with the larger and shorter catechisms, has, with modifications, remained the confession of Eng.-speaking Presbyterians (see PRESBYTERIANISM, and SCOTLAND, CHURCH OF). In 1673 Robert Barclay issued a statement or Apology embodying the faith of the Society of Friends. In 1833 the Congregational Union pub. a confession which was prepared by Dr. George Redford, not as a confession in the strict sense, but as embodying general principles. The Orthodox Gk. Church, besides the Nicene Creed (minus the 'filioque' clause), and the Athanasian Creed has a confession drawn up in 1640, and a catechism of 1839. The Rom. Catholic Church formulated its doctrines in the decrees of the Council of Trent, made in 1554 and 1563 on the dogmas of the Immaculate Conception and papal infallibility.

Confidentially, in law, or Privileged Communications. There are necessarily many occasions on which one person may freely make statements to another without being in danger that the law will compel him to disclose the nature of the communication. In law such statements enjoy a *qualified privilege*, the privilege being in most cases qualified by proof of express malice or ill will. As a rule the privilege arises either from the existence of some common interest (generally pecuniary) between the person making the statement and the person to whom it is made, or by reason of some moral, social, or legal obligation. A moral or social duty has been judicially described as one which is recognised by Eng. people of ordinary intelligence and moral principle. Confidential reports to an official superior, answers to confidential inquiries in the ordinary course of business, as by one banker to another respecting the financial credit of a customer, and statements as to the character of a servant are common examples of such duties. Communications between husband and wife are always privileged. Communications made in self-protection are equally privileged. *e.g.* a warning given by a master to his workmen not to associate with a former fellow workman dismissed for dishonesty. Communications as to affairs of state or official communications between public officers on public affairs cannot be disclosed without the consent of the head of the dept. concerned. The C. of communications with legal advisers extends to all statements or documents concerning matters made the subject of professional intercourse; but communications made in furtherance of a common unlawful design are not privileged. The compulsory disclosure or discovery of documents after action commenced is no real exception to the rule of C., such dis-

covery being based on the principle that if the party makes the documents part of his case they must come out sooner or later; and their purport ought, in ordinary fairness, to be divulged to the other party, that he may know what case he has to meet. Medical men may be compelled to disclose communications made to them even though imparted in professional confidence; and the rule of privilege probably does not extend to communications made to clergymen; but judges have evinced a disinclination to enforce disclosure. In this latter respect Eng. law differs from that of Rom. Catholic countries and the U.S.A. In Scots law confessions made by a prisoner to obtain spiritual advice and comfort are, but confidential communications to clergymen in the ordinary course of their duty are not, privileged. A broad distinction must be noted between statements made in answer to confidential inquiries and those merely volunteered. The latter would only be protected if it were the duty of the person making the statement to volunteer the information contained in it: for the law does not protect idle gossip. Generally it may be said that where a confidential relationship exists, *e.g.* as between master and servant, brother and sister, employer and employee, or perhaps intimate friends, there is a mutual duty to volunteer information on anything which each of them ought to know. But where there is no confidential relationship volunteered statements are not often privileged.

Confirmation (Lat. *confirmare*, to strengthen), ceremony for the completion of baptism, and consists in the laying-on of hands by a bishop and the invocation of the Holy Ghost as a comforter and strengthener. In the Rom. Catholic and Gk. churches it is always accompanied with the anointing with oil. There is some difference of opinion among the churches as to the age at which it is to be administered, and as to whether it constitutes a sacrament or not. In the Rom. Catholic Church it is administered, in the W., usually after the age of discretion; in the Lutheran Church from thirteen to sixteen years after baptism; and in the Eng. Church between fourteen and eighteen years of age. In the Gk. and oriental churches C. follows immediately after baptism. In these churches and among the Rom. Catholics it is considered as a sacrament, but not by the Eng. Church, except among the High Anglican. In the Gk. churches it is usually given by the priest at baptism, but among the Rom. Catholics nearly always by a bishop. The Lord's Supper is not taken by the Eng. and Lutheran churches until after C.

Confiscation (Lat. *ascus*, the treasury). In its literal signification, means forfeiture of property to the Treasury, as, for example, in Rom. law the *Lex Julia* punished violence without arms by C. of a third of the offender's property. In Eng. law C. of property, generally known as forfeiture, followed on conviction for felony (see CRIMINAL LAW); but the Forfeiture Act, 1870, abolished forfeiture for felony, although in certain cases the accused may

be condemned to pay compensation up to £100. The expropriation of neutral ships carrying contraband of war (see DECLARATION OF LONDON) is practically the only other kind of C. now known either to municipal or to international law.

Conflict of Laws, or Private International Law, i.e. the body of recognised principles for deciding cases where the private or local law of different nations is in conflict. Private International Law, or, to use Prof. Dicey's phrase, C. of L., consists of the rules acted upon by courts of justice in determining (1) the limits of their own jurisdiction in disputes relating to foreign transactions; and (2) the appropriate law, whether local or foreign, to be applied in a case which is within their jurisdiction. Most civilised countries concur, for example, in deciding cases on contract according to the law of the land where the contract was made. The question whether the courts of one country are guided by courtesy or by legal principle in applying foreign law to the decision of particular cases has given rise to much academic controversy, owing to the truism that the courts of one country cannot be legally compelled to respect alien legal principles. See COMITY.

Confoveal, having the same foci. In geometry, a conic or conic section may be regarded as the curve formed by the intersection of a cone by a plane, or as the locus of a point whose distances from a fixed point called the focus and a fixed line called the directrix form a constant ratio. If conics have the same foci, they are termed C. A characteristic proposition is that if an ellipse and a hyperbola have the same foci, they intersect at right angles.

Conformable Strata, are beds which rest upon one another in a regular manner, the bedding planes being parallel throughout. This shows that in these cases the same physical conditions have accompanied each deposit of a stratum, and the formation is conformable because continuous and uninterrupted. When, however, land is raised out of the water, denudation takes place, and should those strata become again submerged and new deposits arise, then the bedding would not, as a general rule, be conformable. See UNCONFORMITY.

Confraternities, see BROTHERHOODS.

Confucius (551-478 B.C.), the famous Chinese sage, b. in the vil. of Ch'üeh, in the prov. of Lü. His family name was Kung, his clan being an offshoot of the dynasty of the dukes of Sung. In C.'s third year his father, who had been a soldier of distinction and valour, died, leaving his second wife, who was C.'s mother, ill provided for. The title C. is a Latinised form of K'ung Fū-tszu, the Master King. In 532 C. married, a son, Li, and two daughters being the fruits of this marriage. In the following year he began to teach in his native state Ch'üehli (Chihli), having occupied the interval as a subordinate official in charge of public herds and stores. Between 531 and 517 he paid a visit to the cap. at Loh, where it is thought he

may have met the great teacher Lāo-tszu. In the latter year he took refuge in the neighbouring prov. of Chi, for Lü was the scene of civil strife in which the reigning Duke Chiao suffered defeat. On the death of this ruler in the year 510, Ting became duke in his stead, and when in 501 he appointed C. governor of the city of Chungthü he found that he had done an excellent service alike for his own house and for his subjects, for C., who was rapidly promoted to the Ministry of Works and later of Crimes, became at once the idol of the people and the practical reformer of many outstanding abuses. Gov. grew strong; men grew loyal, and women gentle. Immorality and corruption both vanished, and from far and wide men came to see a model state. But petty jealousies undermined his success, and a crafty gift to the duke of some beautiful courtesans led indirectly to a rift between the latter and his counsellor. Accordingly in the year 497 C. set out on his wanderings, which were destined to last till 483. With a little band of faithful disciples he travelled from state to state and court to court, settling always where there seemed most chance of freedom from persecution. Friends and believers in his word were not lacking, yet it was no uncommon thing for his company to be in actual want and even in peril of their lives. At length there came a message to the teacher in Wei from the ten-year-old Duke Ai, who had succeeded Ting, bidding him return to his native place, which he accordingly did. It is improbable that he made any effort to pick up the threads of his old political life. Rather he devoted his last years to literature, to the collection and exposition of the anc. writings, and especially to the piecing together of his *Ch'un Ch'ü*, which recounts the annals of Lü from 722 to 481 B.C., and to which a peculiarly high interest is attached as the only classical or really authenticated work of this greatest of Chinese sages. But to gain any insight into C.'s personality, it is necessary to turn from such a bare record of biographical facts to the many memorabilia compiled by his disciples, for the Confucian analects were collected shortly after his death, and probably give a true picture of what the Master said and did. They should, therefore, be carefully distinguished from that mass of legendary and apocryphal literature that later grew up round the name of C. as round that of every great religious teacher. And first of all it seems clear from the analects that, unlike other men of equal influence, C. was careful to disclaim any special communion with God. Indeed his conversation was rarely of the nature of divinity or heaven, and his answers to such questions as 'What becomes of man after death?' or 'What is the meaning of sacrifice to the spirits of the dead?' were always enigmatic or evasive. So deficient are his sayings in the fervour of the piety of a Francis of Assisi or in the belief in human progress and in a great social regeneration to come, that many regard Confucianism rather as a system of ethics than as a

religion. Yet in the days of his misfortunes and exile he was supported by a belief in the reality of his mission as a preacher of the truth. He said once to his followers fearful for his safety: 'After the death of King Wán, was not the cause of the right way lodged in me? Will Heaven doth not wish this cause to perish, what can the people of K'wang do for me?' Further, he is said to have remarked of himself at the age of seventy that he 'could do whatever his heart prompted, without transgressing what was right.' But he has himself told posterity how he liked best to imagine his life's work. Once a disciple was non-plussed when a certain ruler asked him to describe his Master. 'Why did you not tell him,' said C., 'that I am a man who in his eager pursuit of knowledge forgets his food, and in the joy of its attainment forgets his sorrows, and who does not perceive that old age is coming on?' Thus he would have men picture him as a philosopher eager in the search of truth, but it was always the truth of this world, that is of the just relationship between man and man, rather than the truth of the Unseen and of what all sceptics regard as the Unknowable. 'While you cannot serve men,' he once argued, 'how can you serve spirits?' But the practical nature of his teaching is best realised in his emphatic assertion of the golden rule: 'What you do not like when done to yourself do not do to others.' It seems that he stated it only thus, that is, in its negative form, and his writings make it clear that he also appreciated its worth in its positive and higher form: in one passage he regrets bitterly that he had not taken the initiative in obeying it. The formulation of this axiom of conduct illustrates his sympathetic knowledge of human nature—a knowledge that further illuminates the countless epigrams and sententious maxims upon which it is no exaggeration to say has grown the fabric of Chinese morality. Scattered up and down throughout all the Chinese classics they have upheld the standard of right conduct to which every good citizen tries to conform. Here are a few of his sayings: 'A poor man who does not flatter, and a rich man who is not proud, are passable characters; but they are not equal to the poor who yet love the rules of propriety.' 'What the superior man seeks is in himself; what the small seeks is in others.' 'A man can enlarge his principles; principles do not enlarge the man.' 'In style all that is required is that it convey the meaning.' 'Learning undigested by thought is labour lost; thought unassisted by learning is perilous.'

Much of his life was devoted to literature. His remark that 'by the "Spring and Autumn" men would know him and men would condemn him' shows the importance that he himself attached to this part of his work. Yet it is a matter of established fact that the book to which he refers (his *Ch'un Ch'ü*) is full of gross misrepresentations and suppression of essential facts, besides being at the best no more than the most meagre of histori-

cal abstracts. The attempt to harmonise his statements with reliable data has been the cause of endless and futile activities among the ablest of Chinese scholars. Yet this book has been the model of all historical summaries of later times. This can only be accounted for by the unbounded admiration accorded to C. and to all his achievements the instant almost he had passed from this life, where, like many another prophet, he had met with his full share of neglect, scorn, and adversity. To-day the law requires that there shall be a temple to C. in every prefecture, sub-prefecture, dist., and mkt. tn. in the land, and although he has never been deified, sacrifices and prayers have from the moment of his death daily been offered him by faithful worshippers in all corners of the Chinese realm (see also CHINA, *Chinese Literature*). See H. F. Johnston, *Confucianism and Modern China*, 1934; Lin Yutang (ed.), *The Wisdom of Confucius*, 1930; M. Collis, *The First Holy One*, 1948; and A. Doebelin, *Confucius*, 1948.

Conge d'Elire (in Anglo-Fr. *conge de eslire*) means leave to elect, and is applied in England to the warrant or licence from the Crown to the dean and chapter of a cathedral, authorising them to elect a bishop or archbishop, as the case may be, to a vacant see.

Conger Eel, The, muscular, voracious fish of the eel family (Anguillidae). In colour it is usually whitish below and a dark blue-grey above, whilst its length varies from 3 to even 10 ft. It has no pelvic fins nor scales, but its dorsal fin is continuous and stretches very far forward. These eels have wide mouths, sharp, closely packed teeth, and free tongues, and though their flesh is coarse are quite edible. They occur in four distinct species which are widely distributed over the temperate and tropical seas.

Congestica, localised excess of blood in the arteries, veins, or capillaries. It is to be distinguished from plethora, or general excess of blood. C., or hyperemia, may be classified as arterial or venous, active or passive, inflammatory or atonic, functional or hypostatic; or as associated with different parts, as cerebral, spinal, pulmonary, renal, hepatic, etc. Arterial or active hyperemia is caused by the increased flow of blood to a part; it may be inflammatory, when the blood is in excess for the purpose of eliminating irritating substances; or functional, when it is due to the normal action of some organ. Venous or passive hyperemia is caused by delay in the return of the blood to the heart; it may be atonic, when it is due to the enfeebled or obstructed state of the circulatory system; or hypostatic, when it is due to the action of gravitation. The last two states are necessarily often associated.

Active hyperemia may be caused by nervous disturbance due to emotion, as in blushing; by increased functional activity; or by local external stimulation, as the application of heat, poultices, etc. The symptoms are redness in the adjacent parts and a throbbing which eventually

becomes painful. If long continued, a possible effect is hypertrophy of the tissues affected, owing to the excess of nourishment; while a sudden hyperæmia may result in the rupture of blood-vessels and the exudation of blood into the neighbouring parts. The treatment, if it is advisable to reduce the hyperæmia, consists of the application of cold to the part; or the application of a counter-irritant to another part of the body.

Passive hyperæmia may be caused by loss of power in the heart due to old age, debility, or valvular disease. It may also be induced by the action of cold which constricts the veins and capillaries without affecting the deeper lying arteries; or by applying a ligature or tight bandage to a limb or other part. The most dangerous conditions are occasioned by embolism, or the blocking of a blood-vessel by a fragment of tissue carried along with the blood-stream; or thrombosis, which is the sudden clotting of the blood at some point in the course of a vessel. The surface symptoms of passive hyperæmia include a deepening of the colour to purple. The possible effects are exudation of blood into adjacent parts and fatty or fibrous degeneration of the tissues owing to failure of the nutritive functions of the blood. If the cause be cardiac weakness, the treatment aims at stimulating that organ by means of drugs such as digitalis, ammonia, etc., and at lessening the strain by a recumbent position and as much rest as possible.

C. of the lung occurs at moments of excitement; it is also a stage of heart disease and of pneumonia, and may occur by reason of the settlement of venous blood in the base of the lung when the heart is enfeebled by old age or the exhausting effects of fevers, etc., to give hypostatic pneumonia. In the first stage of pneumonia the vessels are gorged with blood and exudation takes place into the surrounding tissues, leading to the second stage, when the air-cells are occupied by blood. The third stage involves fatty degeneration, when there is considerable danger from absorption of the morbid products. C. of the kidney is active when there is irritation from drugs such as cantharides, or from microbe poisons; it is passive in heart and lung disease or when the *vena cava* is obstructed by tumours. C. of the liver and digestive tract is a normal condition during the process of digestion. It may become excessive through the use of rich or stimulating food. Passive hyperæmia occasioned by debility leads to deficient functioning, when a condition of chronic catarrh may set in. C. at the base of the digestive tract leads to the formation of hemorrhoids or piles. C. of the brain is often due to embolism or thrombosis, in which case it is known as apoplexy and is characterised by varying degrees of loss of consciousness and paralysis according to the site of the vessels involved. C. is sometimes induced for remedial purposes, as in the application of poultices, hot air, etc. See BIKER'S CONGESTION TREATMENT.

Congleton, tn. in the co. of Cheshire,

England. It stands on the R. Dane to the S. of Macclesfield. Its prin. manufs. are silk and cotton fabrics. Four m. S. of C. is Little Moreton Hall, a property of the National Trust. It is a moated building of the sixteenth century, which took its present shape between 1559 and 1589, and generally considered to be one of the most perfect specimens of the 'black and white' style in England. The hall is remarkable for its carved gables and Elizabethan wood and plaster work. Pop. 15,900.

Conglomerates (from Lat. *conglomerare*, to form into a ball) are merely consolidated gravels, and are typical shore formations or beach deposits. They consist of rounded pebbles, and vary in diameter from 20 to 1 ft., and which owe their smooth surfaces to attrition during transport by sea currents. Most of the pebbles are of a hard rock, such as granite, sandstone, quartzites, cherts, flints, and gneiss, whilst the matrix or binding material, where it exists, is sometimes a kind of feldspathic or calcareous sandstone, but usually is similar in consistency to the pebbles, only with a greater proportion of dolomite clay, weathered feldspar, mica, and other softer stones. The stratification of C. is usually very rude, their appearance being described as 'tumultuous,' but rarely they are intercalated with fine materials like shale, which serve to show the nature of their bedding.

Congo, second riv. of the continent of Africa in point of drainage area (1,425,000 sq. m.), and also in point of length (about 3000 m.), whilst its volume of water it is surpassed only by the Amazon and the Mekong. The mouth of the C. was first discovered in 1482 by Diogo Cão, the Portuguese explorer, who estab. a settlement. Nearly 400 years later a Brit. expedition under Capt. Tuckey surveyed the C. mouth, which was believed to be the outlet of the Niger R., but the expedition ended fatally. Later two expeditions under Cameron and Grandy went to the assistance of Livingstone, who d. at Lake Bangweulu. Cameron's expedition led politically to the opening-up of the country under the auspices of King Leopold, and in 1877 Stanley made his famous voyage down the C. from the Luapula to the sea. The actual source of the riv. is still disputed. Geographically the Lubudi, which flows into the Luapula above Bukama, is the headstream of the C., as from there to the mouth of the C. the riv. valley shows normal development. But if the source of the C. is to be found in the headstream of its furthest trib., the C. may be said to rise in a high table-land between Lakes Tanganyika and Nyasa at an altitude of 5000 ft. Its two head-streams, the Chozi and Chambezi, after their union, enter Lake Bangweulu, and on their exit at the S. corner are known as the Luapula, which soon hurls itself over the Mumbatuta Falls. With a breadth varying from 300 to 1150 yds., the Luapula passes through Lake Mweru (2800 ft. high), and in its journey across the Mitumba Mts. falls some 1000 ft.

Soon afterwards the main riv. is joined by the Lualaba and Lubudi, together with two other streams from the W. Up to the Stanley Falls, two rapids only—those at Nyangwe and Ukassa—make the C. unnavigable. Stretching now often over a mile from bank to bank, it receives from the E. the Lukuga, which drains Lake Tanganyika, and further N. the Lira and Urindi, coming from the forest tracts. The Middle C., which enters the alluvial plain of W. equatorial Africa at an elevation of 1300 ft., runs mainly in a westerly direction till it turns sharply southward near Bangala. Of the S. tribs. the Lomami, which pursues a course

more falls intervene. During this part of its course the C. drops 850 ft. in 146 m. Round the non-navigable sections of the riv. railways have been constructed to carry freight, etc. From Matadi to the Atlantic, which the great riv. finally reaches with a S.-westerly course, the distance is 86 m., and may be covered by ocean vessels. The C. alone of African rivs. can boast of a true estuary, the bottom being a great canyon extending 100 m. out to sea and obtaining in some places a depth of 4000 ft. below the normal sea level. At its mouth the C. is 6 m. wide. See T. A. Barnes, *The Wonderland of the Eastern Congo*, 1922.



THE HEADWATERS OF THE RIVER CONGO

E.N.A.

mostly parallel to the Upper C., is the chief, whilst the Lulonga joins the main stream many m. to the W. Other affluents on this side are the Ruki and the streams of the great Kasai system, including the Lukeni, Sankuru, Lulua, Djima, and Kwango. Joining the Middle C. on the right or N. bank are the great Aruwimi and Ituri, which rise near Lake Albert and water the equatorial forests, the Rubi, and the Ubangi or Welle, which is far the largest trib. on this side. Below the Ubangi is the Sanga, which flows into the C. with a southerly direction. There are many lacustrine expansions along the Middle C., the last being that of Stanley Pool, which is 1000 ft. above sea level. This part of the riv. is navigable for some 1020 m. Above Man-ya-nga, on the Lower C., there are about twenty rapids in a course of 90 m. From this place to Isangila, a distance of 70 m., the riv. is navigable, whilst below ten

Congo, Belgian, formerly Congo Free State and now a colony of Belgium. Its coast-line is only 25 m., but its whole area is some 909,000 sq. m. The B. C. is bounded on the N. by Fr. Equatorial Africa, on the N.E. by the Anglo-Egyptian Sudan, on the E. by Uganda and Tanganyika Ter., on the S.E. by N. Rhodesia, on the S.W. by Angola, and on the W. by the Atlantic. The central zone of the colony is a great table-land with an average altitude of 3000 ft. above sea level. It is a well-watered country, covered with wooded savannahs and forests which grow in the riv. valleys, especially towards the E. and N.E. of the state. The forest region, stretching from Lake Albert to the mouth of the Aruwimi, known variously as the Great Congo, the Stanley (from its discoverer), and the Pygmy (from the small people inhabiting it) Forest, covers an area of 25,000 sq. m. In these primeval

impenetrable forests are to be found avenues of trees like the colonnades of an Egyptian temple, opening 'into aisles and corridors musical with many a murmuring fount.' Vegetation grows rank; creeping plants entangle the footsteps of the explorer; dense interlacing foliage of giant trees obscure the sun's rays and everywhere insect and animal life of brilliant colour and every variety of form flourish in plenty. The long int. chain, known as the Mitumba Mts., which has peaks varying in height from 5000 to 10,000 ft., runs from the S.E. boundary in a N.-easterly direction to the great Lake Tanganyika, and then northward past Lake Kivu to Lake Albert. The Bambara hills, to the W. of Tanganyika, are an offshoot of this range. The W. slopes descend gently to the C. basin, but the E. face is often very abrupt. The Crystal Mts. follow the coast-line. N. of Lake Kivu, the W. shores of which are in the colony, are sev. volcanoes which belong geographically to the Nile basin. The C. R., dealt with in another article, is the most important physical feature of the state, as it is also largely responsible for its commercial development. The flora is very luxuriant. The India-rubber is obtained from the lianas of the forest. Giant baobabs grow on the savannahs, and in the forests many timber trees, such as teak, ebony, mahogany, besides bamboo palms and resin-yielding trees, and great euphorbias and orchillas are plentiful. There are abundant plantain and banana trees, and in some parts cotton and coffee plants are indigenous. Crocodiles and hippopotami are found in great numbers in the riv., whilst red buffaloes and antelopes wander in the open country, and in the forests a great variety of wild animals abounds, including the chimpanzee and other monkeys, the lion, elephant, jackal, leopard, etc. Storks, parrots, and ibises are quite common, and terns, hawks, and herons are found by the banks of the C. Ants, mosquitoes, spiders, etc., exist everywhere, whilst dragonflies and butterflies are noted for their gorgeous colourings.

The great humidity of the climate, combined with the heat, discourages European settlements. Situated in the zone of the equator, the ann. variation of temp. is slight. The coldest month is July, the hottest February, the average ann. temp. being 90° F. In the W. of the colony rain falls regularly between Oct. and May, the rest of the year being the dry season. It will therefore be seen that along the lower reaches of the C. the period of heavy rains coincides with that of the greatest heat, so that it is not surprising that fevers are much more prevalent here than in the central plateaux, where, moreover, the precipitation is dispersed fairly evenly over the whole year. The rainfall varies, rising sometimes to 38 in. Grass fires are common and extensive, and violent storms are not infrequent. Gov. stations, none of which has a pop. over 5000, correspond to European tns. Banana, near the mouth

of the C., has a fine natural harbour, and is one of the most important trading centres. Boma, an important port on the lower C. 60 m. from the mouth, was the former cap., but the seat of administration was transferred to Leopoldville by royal decree in 1921. The C. railway starts from Matadi, the most important port on the lower C., and goes as far as Dolo on the Stanley Pool, passing Tumba halfway. Tumba has supplanted Lukungu as the cap. of the Falls dist.; Leopoldville is the cap. of the Stanley Pool, Coquilhatville of the Equatorial, and New Antwerp of the Bangala dists. Besides the C. railway, there is a line from Stanley Falls to the Nile. Railways also connect Stanley Falls and Nyangwe (79 m.), Nyangwe and Lake Tanganyika, and Boma and the Mayumbe dist. The completion in 1931 of the Benguela railway joins the E. and W. coasts of the continent (see LORITO BAY). There are 3100 m. of railways and 56,000 m. of road. A motor road runs from Stanleyville to Refat on the Nile. Up to Matadi (85 m.) the C. is open to ocean-going vessels. Above Matadi, for 250 m. rapids render the riv. unnavigable as far as Stanley Pool (Leopoldville). But above the Pool are over 1000 m. of navigable water, reaching Stanley Falls, while sev. of the great tribes are navigable over a considerable extent of their total course of 6300 m. Riv. transport has been much developed, and a pipe line runs from Matadi to Leopoldville to supply steamers with oil. There is an air-mail service between Boma and Elisabethville, both of which tns. are important telegraphic centres. There are also regular air services from Leopoldville to Stanleyville, Lusambo, and Elisabethville, and Stanleyville to Usumbura and Elisabethville. Wireless stations are estab. at forty-six points. Agriculture is still very undeveloped. There are, however, cocoa, coffee, rice, rubber, and tobacco plantations, and maize, manioc, and sugar-cane are also grown. Cotton is being increasingly cultivated and exported. Oil palms are abundant and supply an ever-increasing trade in palm oil and palm kernels. Rich deposits of uranium, copper, and copper ore are found in Katanga, especially the S. dists. Diamonds are found in the Kasai dist. Petroleum has recently been discovered in the Albertine Rift. Iron, though widely distributed, is still mined in a primitive fashion. Gold mines are worked at Kilo and the Mboga dist., Lake Albert (30 m. E. of Kilo), and also at Ruwé in Katanga. Other minerals worked include manganese, zinc concentrates, and tin. Large radium deposits occur in the Elisabethville Prov., where the large copper deposits are found. Bakuma is the centre of a rich tin region. Diamond-bearing gravels are exploited in the S. The gathering of the caoutchouc from rubber vines is the staple industry. Other exports, 75 per cent of which are sent to Belgium, are ivory, palm oil, coffee, rice, cocoa, timber, and white copal,

radium, tin, wolfram, and diamonds. Food, machinery, clothing, and arms are the chief imports.

The inhab. of the colony belong to the Bantu-Negro stock, but the small Pygmy bands, distributed in the great forests, probably are the survivors of the aboriginals of Central Africa. The natives are divided into many tribes, among which may be mentioned the degenerate Ba-Kongo, the Ba-Luba, the Ba-Lunda, the Mongo, the Bo-kuba, and the warlike Azandeh, who immigrated from the N. Two kinds of culture prevail among the natives: that of the W. and central dists., where clothes are made of palm fibre and the bow is the chief weapon, and that of the E. border and Welle dist., where skins are used for clothing and the ordinary weapons are swords, spears, and throwing knives. The tribes are for the most part autonomous. They all speak different dialects of Bantu, but most of them understand Swahili. Elaborate funeral rites and the propitiation of countless malignant spirits are the chief articles of religion. The N. W. dist. is given at 10,676,000. The white pop. numbers 357,000. Chief tns.: the cap., Leopoldville, 110,000 (7200 whites); Matadi (400 whites); Elisabethville (6200 whites); Jadotville (2000 whites); Stanleyville (900 whites); Coquilhatville (350 whites); Banana; and Boma.

Cameron's expedition in 1875 led to the formation of the Association 'Internationale Africaine' under the auspices of Leopold II., king of the Belgians. The association was to suppress slavery and to civilise Africa, and a great impetus was given to the movement by the discoveries of H. M. Stanley (q.v.) in 1877. In 1885 the C. Free State was given international status by the treaty of Berlin. Before slavery could be suppressed, war took place between the Belgians and the Arab traders under Tippoo Tib. To aid the state to recover financially from the effects of the war Leopold adopted the concession system for exploiting the natural resources of the country. The system led to many abuses and the C. Free State was formally annexed by Belgium in 1908. The state became an absolute monarchy. A governor-general, with civil and military powers, represents the king in Africa. At home a colonial minister, advised by a colonial council, now supervises the government of the state, which for administrative purposes is divided into 6 provs.; the provs. are divided into 18 dists., the dists. into 123 ters. Technical and agric. colleges have been estab., chiefly to educate recruits for the armed force of the state. In 1927 some ter. in S.W. B. C., area 3500 sq. km., was ceded to Portugal in exchange for an area of 3 sq. km. in the C. estuary. The cattle country of Ruanda-Urundi, formerly in Ger. E. Africa, is included in the Belgian administration of the C. under mandate from the League of Nations. See also CONGO RIVER. See H. M. Stanley, *The Congo and the Founding of its Free State*, 1885; E. D. Morel, *Red Rubber*, 1906; C. Christy, *Big Game and*

Pigmies, 1924; T. A. Barnes, *An African Eldorado: the Belgian Congo*, 1926; P. Schebesta, *Among Congo Pigmies*, 1933; and L. G. Pugh, *The Changing Congo*, 1948.

Congo, French, see FRENCH EQUATORIAL AFRICA.

Congregation (Lat. *cum*, with *gregare*, to gather into a flock), collection of people, the term usually being applied to those gathered together for public worship. In the Rom. Catholic Church it denotes certain bodies of men—such as cardinals—who meet together with a special object connected with the affairs of that church. Thus there is the C. of the Council, which enunciates the formal interpretation of the Council of Trent; the C. of the Propaganda, which looks after missionary affairs; that of the Holy Office of the Inquisition, which judges matters of faith; the C. of the Index, forbidding the reading of certain books; and sev. others. The term is sometimes applied to a body of men who undertake to observe certain rules, but are under vows less strict than those of the monks, as the Passionists and others. It also signifies a certain number of monasteries who band together in an autonomous federation: thus in the Benedictine order there were the Cs. of Bursfold and St. Maur. The univs. are governed by bodies known as Cs. The Congregationalists obtained their name from the fact that they believe in the basis of government being laid down by each C. for itself.

Congregationalism, name given to that part of the Protestant Church which, in organisation, is based on independency, in the sense that each body of worshippers or congregation is locally governed and only answerable to itself. It is one of the most important of the Free Churches in the United Kingdom, and occupies an equally important position among the Protestant non-episcopal churches of the U.S.A. Regarded generally, it is one of the three great systems of eccles. gov. and organisation as contrasted with Episcopacy on the one hand and Presbyterianism on the other, the one with its diocesan organisation and administration, the other with its regulation by eccles. courts, while C. has its roots in independent democracy. In England, the original home of the principles of C., its rise and development were very gradual, and began in a separatist movement from the Church as under the supreme headship of the Crown. In Mary's reign small secret congregations met under Protestant clergy, and without them if such were not obtainable; in Elizabeth's reign these meetings increased and, realising that no real chance of reformation was coming, began definitely to arrange themselves in local bodies and conform only to what they held to be the real teaching of the N.T. Robert Browne (1550-1633) stands out as the most important figure and leader of the separatist Puritans; after great persecution he and as many of his congregation as were able emigrated to Zeeland in Holland. Here they were tolerated, but owing to differences among themselves this community broke up.

Persecution in England gave them extra strength, but again differences arose; Smyth, one of the Zeeland community, became a Baptist, and a Baptist community settled in England; John Robinson, whose views were identical in the main with those of modern C., differed from Robert Browne, and started large and for a time flourishing communities. During the Civil war, the Independents, as they now began to be called, grew and estab. themselves widely and firmly, and had a great influence in resisting the estab. of Presbyterianism. The real hist. of religious liberty may be regarded as beginning at that time and through them. Cromwell was a follower and supporter of them, especially in their political views, and the Protectorate saw them firmly settled. The Restoration forced them, with the Baptists and Eng. Presbyterians, into Nonconformity. The hist. of early C. is closely connected with the Puritan migration to America (see below). The Toleration Act, 1689, gave freedom of religious thought to all parties, and this was followed by a period of stagnation or apathy, not only confined to them, to be stirred to a greater spiritual enthusiasm under the inspiration of the Methodist movement of the eighteenth century, when the numbers of Congregational bodies increased enormously. The nineteenth century was marked by a tendency to combination. In 1811 the Congregation Union of Scotland was formed, and in 1831 a similar union was made between the Eng. and Welsh bodies. In 1896 the Congregationalists and the Evangelical Union combined and arranged that international councils should be held, one being held at Boston, Massachusetts, in 1899. The Congregational Union is one of the prin. members of the Free Church Federation, founded in 1893. It supports home and foreign missions, the London Missionary Society especially owing much to it. All social reform movements are supported by it. The Central Hall of the Union in Farringdon Street, London, is the official centre. There are about 4457 churches and mission stations in Great Britain, with over 1000 churches in Brit. dominions; there are also churches in many parts of the European continent. The most recent (1931) statistics give 1,020,000 adherents in England, 520,000 in Wales, and 107,000 in Scotland. The Church of the Pilgrim Fathers, New Kent Road, is the oldest (A.D. 1616) Congregational church in London. It was enlarged by Amer. subscribers in 1856. The Harcourt Congregational Church was founded in 1648 at Pancras, Soper Lane, and after various moves was removed in 1857 to Canonbury. The City Temple, the Westminster Congregational Church and the Whitefield Central Mission are the other great Congregational churches of London.

The hist. of Amer. C. begins with the arrival in 1620 of Wm. Brewster, elder of the refugee church in Leyden, whose small band founded Plymouth in the modern Massachusetts, though strictly this group were Separatists. The enthu-

siatism that marked the early years of Amer. C. waned, and it was not until 1734 that the 'revivalist' work of Jonathan Edwards (followed by that of Whitefield in 1740) roused fresh zeal. But the Edwardian standpoint was followed by nearly fifty years of apathy, during which interest centred mainly on doctrinal controversy. The 'New England Theology' of Edwards, Bellamy, and Timothy Dwight soon became predominant, and was generally in vogue at the beginning of the nineteenth century. The 'Literal' school of Chauncy and Mayhew, however, rapidly grew in importance, and as early as 1805 was recognised in Harvard College as predominant. C. has never, however, made much headway in the S. states, the influence of the above theological schools, which emerged out of the old Calvinistic theology of the early New England settlers, being more or less confined to New England states. But it has spread to the W., though it was not until about 1850 that Amer. Congregationalists began to unite and to spread their distinctive policy in the W. states and ters. There has, in the last few decades, been a spread in the community of innovations in doctrinal opinions, and a wider diversity of belief, with the result that 'Evangelical' (popular sense) rather than 'Calvinistic' is the more appropriate definition of Amer. Congregational preachers and churches. Besides some 500 foreign mission churches, there are at the present date about 5500 Congregational churches in the U.S.A. More than 600 of them are in the state of Massachusetts, which is the stronghold of C., no other state reaching the 400 mark. The members of the body number nearly one million. See W. Walker, *History of the Congregational Churches in the U.S.A.*, 1894; R. W. Dale, *History of English Congregationalism*, 1907; R. G. Usher, *The Pilgrims and their History*, 1918; A. Peel, *A Brief History of English Congregationalism*, 1931.

Congregation of the Holy Office of the Inquisition, see OFFICE, HOLY.

Congress, Library of, see LIBRARIES, U.S.A.

Congress (Lat. *congressus*, an assembly; from *cum*, together, and *gradus*, a step). In its diplomatic sense C. means a gathering together of sovereigns or their representatives to discuss questions of international interest. Famous Cs. of the past were those of Munster and Osnabrück, which resulted in the treaty of Westphalia, 1648, and at the end of the Thirty Years war; of Radstadt, at the end of the Sp. Succession war, in 1713; of Vienna, at the end of the Napoleonic wars in 1815; of Paris, in 1856, at the end of the Russian war; and of Berlin, in 1878, at the close of the Russo-Turkish war. But the name C. has come to be applied in Federal states to the legislative assembly which directs national or federal as contradistinguished from State or prov. concerns (see next article). Still more recently the name has become associated with the Indian Nationalist or Home Rule movement (see INDIAN NATIONAL CONGRESS) and the Trades Union C. to

which body are affiliated most of the Brit. trade unions (see TRADES UNION CONGRESS).

Congress of the United States is the National Legislature, consisting of two bodies, the Senate and the House of Representatives. The Senate numbers ninety-six members, each state electing two members for a period of six years, one-third retiring or seeking re-election every two years. The House of Representatives consists of members from the various states, elected on a basis of pop., at present, 1 for 281,000 or 435 representatives besides a delegate from Alaska, a delegate from Hawaii, and one resident commissioner from Puerto Rico. The C. is subject to the constitution, which it may not amend save by a two-thirds majority in each House, followed by approval by three-fourths of the States in the Union; and it is not concerned with the executive power, which is decided by popular election. Its legislative power is limited by the existence of the govts. of the individual states, which it may not overrule. The Supreme Court of the U.S.A. has the right to nullify any Act of C. which is judged to be unconstitutional. Within the constitution the powers of C. are in brief these: (1) to levy taxes, duties, imports, and excises; (2) to borrow money on the credit of the U.S.A.; (3) to regulate commerce, foreign and interstate; (4) to establish a uniform rule of nationalisation and uniform laws on bankruptcy; (5) to coin money and to fix the standard of weights and measures; (6) to provide for the punishment of counterfeiting the securities and current coin of the U.S.A. (a resulting power of C. includes the whole of the Criminal Code); (7) to establish post offices and post roads; (8) to promote the progress of science and the useful arts; (9) to constitute tribunals inferior to the Supreme Court; (10) to punish piracies and felonies on the high seas and offences against the law of nations; (11) to declare war; (12) to raise and support armies; (13) to maintain a navy; (14) to provide for the calling forth of the militia to execute the laws of the Union, suppress insurrections, and repel invasions; (15) to provide for organising, arming, and disciplining the militia; (16) to exercise exclusive legislation over the national capital; and (17) to make all laws which shall be necessary and proper for carrying into execution the foregoing powers. Within these terms C. has to deal with a vast amount of legislation. Bills are proposed by private members, and the committee system has been introduced for reporting on and sorting out those which merit immediate consideration. The President has the power of veto (see under ACR). C. meets once a year, but the President may convene one or both of the Houses in special session. The first session lasts from Dec. of the odd-numbered years until the summer; the second session lasts from Dec. of the even-numbered years until March 4. C. came into being after the adoption of the Federal constitution, and arose out of

the old continental C. held since 1789. The present C. (1847-40) is the eightieth.

See Viscount Bryce, *The American Commonwealth*, 1888, 1917; W. B. Munro, *The Government of the United States*, 1925, 1936; F. A. Ogg and P. O. Ray, *Introduction to American Government*, 1925, 1938; D. W. Brogan, *The American Political System*, 1933, and *Politics and Law in the United States*, 1941; A. C. McLaughlin, *A Constitutional History of the United States*, 1935.

Congreve, William (1670-1729), dramatist, was educated at Kilkenny school, where he was a contemporary of Swift, and at Trinity College, Dublin. His father was a lieutenant in the Irish Army



WILLIAM CONGREVE

and his father's home was Idmeston Castle, C. himself was b. not far from Leeds on the estate of his great-uncle on his mother's side, Sir John Lewis. Intending to go to the Bar, he left Ireland and came to London, where he entered himself as a student of the Middle Temple; but he soon abandoned law for literature. He made his debut as a man of letters with a novel, *Incognita, or Love and Duty Reconciled* (1692) pub. under a pseudonym, which has long since been forgotten. He next turned his attention to the stage, and his first comedy, *The Old Bachelor*, was produced, four years after it was written, at Drury Lane in Jan. 1693. This was sufficiently successful to justify the management in putting up, in Nov. of the same year, his second play, *The Double Dealer*, which proved very popular. Some time after Betterton and others of the Drury Lane company seceded, and opened a new theatre in Lincoln's Inn Fields on April 30, 1695, with C.'s *Love for Love*. This proved so much to the liking of the public, and consequently so profitable to the managers, that C. was

given a share in the theatre, he, for his part, undertaking to produce a play every year. With this condition, however, he did not comply. Indeed, he wrote only two more pieces, a tragedy, *The Mourning Bride*, played at the Lincoln's Inn Theatre in 1697, and a comedy, *The Way of the World* in 1700. *The Way of the World* was received coldly, but the author assured his sympathisers that he was indifferent. His other literary work was the composition of poems not of serious importance. He rendered some service to letters by assisting Dryden in his trans. of Juvenal (1692) and Virgil (1697), of which assistance Dryden made due acknowledgment. C. in company with Wycherley, Vanbrugh, and Dryden, was severely mauled in Jeremy Collier's *Short View of the Immorality of the English Stage* (1698). The other writers kept silent—Dryden afterwards admitted the justice of the reproach—but C. replied in the same year in a pamphlet *Amendments of Mr. Collier's False and Imperfect Citations* (from C.'s plays), which Collier answered vigorously and effectively. He had ample means, derived from sinecures, for from 1695 he was commissioner for licensing hackney-coaches, an office which ten years later he exchanged for the more lucrative commissionership of wine licences. In 1714 he exchanged this position for that of secretary for Jamaica, worth about £700 a year, which he held conjointly with a place in the pipe-office, that brought him in nearly as much. He had lived with Mrs. Bracegirdle—there were rumours that he married her—but on his death he left her a legacy of only £200, and left the duchess of Marlborough, who did not want money, the bulk of his estate, worth about £10,000. The duchess spent £7000 of the money on a diamond necklace. All this has prejudiced C.'s reputation as a man; but his legacy to the wealthy duchess is accounted for by the fact that the money was destined for her daughter who was his child. For how otherwise could he, without scandal, have transmitted it? The duchess bequeathed the legacy to the daughter, Mary. Mrs. Bracegirdle, to whom C. was faithful for ten years, and who left him for the wealthy Lord Scarsdale, had retired in easy circumstances twenty years before C. d. After 1710 C. was afflicted with bad sight and bad health. He met his death on Jan. 19, 1729, as the result of injuries received in a carriage accident. He was buried in Westminster Abbey. C.'s plays are chiefly remarkable for polished dialogue coupled with a cynical heartlessness and a fashionable licentiousness. *The Way of the World*, his masterpiece, scintillates with an arctic brilliance. In few plays is the art more adroit, the wit more polished; yet in few is there less of real human interest. It was the fault of C.'s age, perhaps, that he could not deviate from the restrictions of artificial comedy into those broader scenes of life and that wider outlook which lift Vanbrugh, despite his inferior technique, almost to the level of C. C. has not the robustness nor audacity of

Wycherley, but in his own mode and sphere he is unsurpassed. *The Way of the World* ran for over 100 nights at the Lyric, Hammersmith, in 1923, and has been put on more than once in recent years. The long run of *Love for Love*, revived during the Second World War, showed that C.'s popularity as a dramatist had actually, in 1944, reached again the pitch it once attained in his lifetime. John C. Hodges's *William Congreve: the Man* (1944) helps towards a better understanding of C.'s early success as a playwright and of his subsequent motives and character, besides confirming various facts concerning his birth and youth. Hitherto, C.'s reputation as a man has suffered from Voltaire's statement that C. referred to his own works as 'trifles', and told Voltaire that he would rather be considered 'a gentleman who led a life of pliancy and simplicity' than a dramatist. But C.'s estimate of his own work, which disgusted Voltaire, was not due to false modesty or to snobishness. Being a thorough artist and also a detached unambitious man, he considered the comedies which had made his reputation "trifles"; even *Love for Love* he thought "homely fare," though for *The Way to the World* he made no such apology. There are eds. of C.'s plays by A. C. Ewald (1887), W. Archer (1912), and J. W. Crutch (1927). C.'s *Complete Works*, including the adaptation of Molière's *Monsieur de Pourceaugnac*, *Squire Trelooby*, written in collaboration with Vanbrugh and Walsh (1704), ed. by Dr. Montague Summers, was pub. in 4 vols. in 1923. See Sir E. Gosse, *Life of William Congreve*, 1888, 1924; D. C. Taylor, *William Congreve*, 1931.

Congreve, Sir William (1772-1828), inventor of the C. rocket which was successfully employed at the siege of Copenhagen, Lord Gambier's engagement in the Basque Roads (1809) and at Leipzig (1813) where the Rocket Troop of the Royal Artillery did yeoman service. Besides publishing three treatises on his rocket, which was later superseded by Hale's, he patented many other inventions, including a process of colour printing, pyrotechnic improvements, a smoke-consuming device, and a gun-recoil mounting.

Coni, see CUNEO.

Conia, Conino, or Conline (C₂H₁₁N), alkaloid contained in the seeds of the spotted hemlock (*Conium maculatum*). It is a colourless, oily liquid with a penetrating smell, boils at 167° C., turns brown on exposure to the air, and is soluble in water and alcohol. It is strongly basic; the prin. salts are conine hydrochloride and conine hydrobromate. The alkaloid and its salts are strongly poisonous; moderate doses produce motor paralysis without loss of consciousness, and larger doses cause death by paralysis of the organs of respiration. Small doses are valuable in acute mania, delirium tremens, and tetanus.

Conibos, or Manos, tribe of S. Amer. Indians, who live along the banks of the Ucayali, Peru, and also in the Pampa del Sacramento. Franciscan missionaries

were murdered there in 1685, but since their conversion to Christianity such barbarities have become a thing of the past. As they use the language of the Panos, ethnologists regard them as a branch of that people. They wear silver rings on lips and nose, paint their cheeks with blue and red streaks, and gain their livelihood by fishing and trading with white men in sarsaparilla.

Conical Projection, system by which points, lines, and areas on the surface of a sphere or other solid are represented by corresponding markings on the surface of an enveloping cone. As the earth is a spheroid, it is impossible to represent accurately on a plane map the relative distances of points on the earth's surface. A cone, however, is a surface which can be unrolled, or spread out on a plane, to form a sector of a circle. If, therefore, the earth is imagined to be enveloped by a cone touching a certain parallel of lat., the distances on that parallel are accurately rendered on the map when spread out, while the inaccuracy increases as the regions on the earth's surface become more remote from that parallel. In such a map the meridians are represented by straight lines converging to the pole, and the parallels by circles having the vertex of the cone as centre. The method is particularly applicable to maps of the polar regions.

Conic Sections, curves which are formed by the intersection of a cone by planes in different directions. If the cone be cut parallel to the base, the section is a *circle*; if it be cut by a plane parallel to the generator, i.e. a straight line from the vertex to a point on the circumference of the base, the section is a *parabola* (q.v.); if it be cut by a plane parallel to the axis, the section is a *hyperbola* (q.v.); and if it be cut by a plane parallel to none of these, the section is an *ellipse* (q.v.). A conic section or conic may also be regarded as the locus of a point whose distance from a fixed point is equal to its distance from a fixed straight line; a hyperbola is the locus of a point whose distance from a fixed point bears a constant ratio, greater than unity, to its distance from a fixed straight line; an ellipse is the locus of a point whose distance from a fixed point bears a constant ratio, less than unity, to its distance from a fixed straight line.

Coniferae, most important natural order of gymnospermous plants, consisting of between three and four hundred species of resinous trees or shrubs, which inhabit all temperate and cold parts of the world in which arborescent plants can exist. Some of the most characteristic features of the order are the presence of resin-ducts, the regular monopodial branching of the stem, the long tap-root, and the small simple leaves. The classification of the C. is treated differently by various botanists, but the species are often grouped under the headings Pinoidae and Taxoidae. The Pinoidae contains the majority of the species, and includes the well-known genera *Abies*, *Cedrus*, *Larix*, *Picea*, *Pinus*, *Juniperus*, as well as sev-

others of less importance; the Taxoidae comprises *Phyllocladus*, *Ginkgo*, *Taxus*, and six other genera. For further details see separate articles, and W. Dallimore and A. B. Jackson, *A Handbook of Coniferae, including Ginkgoaceae*, 1923.

Conil, coastal tn., with sardine and tunny fisheries, 21 m. S.E. by S. of Cadiz, in the prov. of Cadiz, Spain. Pop. 5500.

Conine, or **Coniine**, see **CONIA**.

Coningham, Sir Arthur (1895-1948), Brit. air marshal, b. at Brisbane, Australia, and educated at Wellington College, New Zealand, and at New Zealand Univ. Enlisted in Canterbury (New Zealand) Mounted Rifles, 1914, but after service in the Middle E. was invalided out of the army, 1916. Later he joined the Royal Flying Corps, serving with great distinction in France as a fighter pilot. Granted a permanent commission in R.A.F. in 1919. Commanded a flight of aircraft in 1925 on the first flight from Cairo to Kano (Nigeria), thus opening the way to an air route across Africa. Awarded A.F.C., 1926. As a wing commander he was posted to Coastal Area in 1935, and, in 1937, was promoted senior air staff officer at Lee-on-Solent. Not long before the outbreak of war in 1939 he was given the command of a group and promoted air commodore. With his transfer in 1941 to the Middle E. his long and fruitful association with Sir Arthur (now Lord) Tedder began. Soon after reaching N. Africa he was put in command of the air forces in Libya, later known as the desert air force. Air vice-marshal, 1942. Awarded K.C.B. in 1942 for his services in the battle of Egypt. He and Sir A. Tedder were the primary designers of the air side of the plan by which the action of all three services were integrated; for though such a system had long existed in theory, it was first applied in Libya. When Sir Arthur Tedder became commander-in-chief of the allied air forces in the Mediterranean in Feb. 1943 C. was assigned the work of concerting the air operations in support of the Brit. First and Eighth Armies in Tunisia. With the acting rank of air marshal C. was then put in command of the N.W. African tactical air force and continued to command the tactical air forces in the field in Sicily and Italy. In 1944 he was appointed air officer commanding of the R.A.F. second tactical air force, which operated with the Brit. and Canadian Armies on the W. front. After the war he became air officer commanding in chief, Flying Training Command, K.B.E., 1946. In 1946 he received the freedom of Brussels, where an avenue was named after him. Resigned at his own request, 1947. Killed when travelling as a passenger in a Tudor aircraft, which was lost on a flight from the Azores to Bermuda (Jan. 1948). A most efficient air commander and a brilliant strategist.

Conington, John (1825-69), Eng. classical scholar, was educated at Rugby and Oxford. He obtained a first-class honours degree in classics (1846), and won (1847-1848) three chancellor's prizes for Lat. verse, Eng. and Lat. essay respectively.

In 1854 he renounced his legal studies in London for the chair of Lat. language and literature at Corpus Christi College in his own univ. Thus amid congenial surroundings he was able to give effectual scope to his supreme and infectious enthusiasm for classical culture, and also to work at his many trans. The most famous of these is his version of the *Æneid* (1866) in the galloping or octosyllable metre of Scott, but he also produced a trans. of the last twelve books of the *Iliad* (1868) in the Spenserian stanza, of the *Agamemnon* of Æschylus (1848), and of the *Odes* and *Carmen Sæculare* (1863) and *Salvæ. Epistles*, and *Art of Poetry of Horace* (1869), the last named being in the heroic couplet. In 1852 he began, in collaboration with Prof. Goldwin Smith, a complete ed. of Virgil, with a commentary, of which the first two vols. were pub. between 1858 and 1864, and the third, in which H. Nettleship replaced Goldwin Smith, soon after C.'s death. He also produced an ed. of Persius with commentary and prose trans., pub. posthumously in 1872.

Conisbrough, tn. in Yorkshire, 5 m. from Doncaster, celebrated for its ruined Norman castle. Rhinoceros bones have been found here. Pop. 16,000.

Coniston, vil. on the shores of C. lake in the N. Lonsdale div. of Lancashire, England. There are slate quarries in the vicinity, and copper ore is mined. John Ruskin resided at Brantwood, his property in the par., and is buried in the churchyard. Pop. 1100.

Coniston Grits and Flags belong to the Ludlow group, which is the geological name of the upper sub-div. of the Silurian rocks in Great Britain. They occur in the Silurian area of the Lake Dist., Cumberland, being named after Lake C.

Coniston Lake, one of the smaller lakes in the Eng. Lake Dist., much visited on account of its natural beauty and associations by tourists from Grasmere and Ambleside. It is situated in N. Lancashire, 14 m. W. by N. of Kendal, with which it is connected by the Furness railway, and 9 m. W. of Bowness on Lake Windermere. The breadth is only ½ m. compared with a length of 5 m., the N.W. extremity being overlooked by the round-backed landmark known as C. Old Man (2633 ft.). Perch and trout are fished from its waters. Brantwood, once the home of Ruskin, stands some way above its E. shore. The most picturesque view of the lake may be obtained from the rising known as Tarn Hawes.

Conium, see HEMLOCK.

Conjeeveram (Kanchipuram), Golden City, one of the oldest tns. of India (Madras prov.) and one of its seven sacred places. It was the cap. of the renowned Pallava kings. One of the anct. Pallava temples is a most remarkable architectural monument for the extent and beauty of its sculptures. Pop. 62,000.

Conjo, tn. in the dist. of Santiago and the prov. of Corunna, Spain. Pop. 6200.

Conjoleus, Fr. tn. in the dept. of Charente. It stands on the R. Vienne. Pop. 3500.

Conjugal Rights, see under MARRIAGE. Conjugation: 1. Term in grammar applied to a verb to denote its different forms. These forms may be obtained by inflection or by the use of particles and other words, the latter giving the periphrastic form of the verb. Verbs are conjugated to express differences of voice, mood, or tense. 2. Term used in biology for a process which leads to the rejuvenescence of cells or to the reproduction of their kind, and is common only to the lowest forms of animals and plant life. Among the animals to which this method of reproduction is common may be mentioned the *Amæba*, *Paramecium*, and *Vorticella*; among the plants, the *Spirogyra*.

Conjunctions, in grammar, are words used as connectives between one word and another, or one sentence and another.

Conjunctiva and Conjunctivitis. The C. is a mucous membrane lining the inner surface of the eyelids, and constituting a pellucid covering on the surface of the eyeball. The former is called the palpebral, and the latter the ocular part. In the ocular part a sclerotic and a corneal portion may be distinguished. The C. is very subject to inflammation of varying degrees of severity. There are many causes of conjunctivitis: general debility from whatever cause, or eye-strain due to defects or overwork of the eyes; irritation from any cause, such as smoky atmosphere or exposure to dust or too bright light. Many of the infectious diseases, such as diphtheria and measles, have eye complications like conjunctivitis. The treatment of conjunctivitis should never be neglected. The cause of the condition where known should be remedied, and rest provided for the eyes, either by a period of comparative disuse or by glasses. The eyes should be bathed by means of an eye-bath, sev. times a day, with some antiseptic lotion such as a weak solution of bicarbonate of soda or boracic acid. Yellow oxide of mercury ointment may be applied to the rims at night. Special towels and washing materials should be kept to scrupulously. See also PINK-EYE; TRACHOMA. See also HORSE (DISEASES).

Conjuring, art of producing apparently miraculous effects by tricks or illusions, so as to deceive the audience. Such may be done by sleight of hand and dexterity, combined with a momentary diversion of the attention of the spectators induced by the performer. Large numbers of tricks with cards, coins, etc., are performed solely by sleight of hand, of which the prin. basis is the concealment and rapid passing of a card, coin, or small object in or to the palm of the hand; these tricks are elaborated by means of mechanical contrivances, objects concealed in the sleeves, etc., and with specially made or marked packs, etc. They are styled tricks of legdormain or prestidigitation. Another class, and these are they which have a long antiquity, are based on natural phenomena, unknown or unappreciated by the audience, such as the effect of combining or using chemical substances, electricity, etc.

Further, many wonderful feats, especially of E. jugglers and conjurers, are attributed to hypnotism and the undoubted power of thought transference and suggestion. Elaborate code signals explain many other feats. Further we get the illusions proper, the vanishing figures, automatic figures, speaking heads, and all the devices of the modern scientific conjurer and wonder-worker. C. is often styled white magic, to distinguish it from sorcery or black magic. C., or magic, is a very anct. art; the people of the E. delighted in and feared their magicians. The Syrians and Babylonians, and especially the anct. Egyptians, were exceedingly clever conjurers. The anct. Gks. and Roms. also delighted both in C. and juggling, and from ages past till to-day the Hindus have been experts in the art. From China and Japan have come many elaborate and beautiful tricks with birds in cages, gold-fish, and the like. The mechanical figure has a long hist., and so has the production of spectral figures or phantasms, obtained by reflection on smoke or on mirrors. Considerable interest was aroused in recent times by the offer of J. N. Maskelyne of a large reward for an imitation of his famous box-trick; the result was a lengthy legal suit carried to the House of Lords. The successful imitator won his case, though his box was not the same as Maskelyne's. The wonders of the mediæval sorcerers were worked on many of the principles developed and improved to-day, when every branch of physical science, chemistry, optics, mechanics, and electricity, is called to the aid of the conjurer or illusionist. J. E. Robert-Houdin (1805-71) was one of the most famous of modern conjurers. His Temple of Magic in Paris was the scene of many marvels, in which he used electromagnetism; though a Ger., Döbler, in 1842, was the first to use electricity in his trick of lighting 200 candles at once by the firing of a pistol. Houdin, it may be recalled, was sent to Algiers by the Fr. Gov. to prove that the marabouts were not in league with heaven. The production of objects, of which the rabbit from the hat is the most familiar, has long been a favourite, and has had endless modifications and elaborations. In modern Egypt the street and bazaar conjurers abound. Many of their tricks are performed with mirrors, and in special cases hypnotism and thought-reading play a part. Disappearing figures appeared in England as early as Chaucer, and in the sixteenth century spectral illusions were exhibited in the Colosseum. In the eighteenth century a vanishing figure was produced with the aid of mirrors in France. The illusion of unsupported figures floating in the air was first produced by the Chinese. Roger Bacon was said to have a speaking head of brass, and throughout the Middle Ages we have allusions to man's feats of so-called magic and sorcery which are eclipsed by the white magicians of to-day. Few tricks have surpassed Maskelyne's 'Vanishing Lady,' or his automaton, Psycho, and

other performing figures. See L. Hoffman, *Modern Magic*, 1877; E. H. Jones, *The Road to Endor*, 1920; H. Houdini, *Paper Magic*, 1922; W. Goldston, *Great Tricks Revealed*, 1935; J. Maskelyne and A. Groom, *The Book of Magic*, 1936; J. Maskelyne, *White Magic*, 1937. W. B. Gibson, *Professional Magic for Amateurs*, 1948.

Conkling, Roscoe (1829-88), Amer. politician and lawyer, was b. in Albany, New York. From 1858 to 1862, and again from 1864 to 1867, he sat in Congress as Republican representative. His final resignation was due to his election as U.S.A. senator, a position he occupied for fourteen years (1867-81). As regards the conduct of the Civil war and the treatment of the S. states he proved an energetic supporter of the policy of Lincoln and Grant, and consequently an opposer of Johnston's schemes. In 1880 his vigorous championship of Grant and his rivalry with Blaine (q.v.) led to a split in the republican ranks. His resignation of his senatorship took place in the following year. He had a protracted dispute with Garfield on the question of the New York patronage.

Conn, Herbert William (1859-1917), Amer. biologist, b. at Fitchburg, Massachusetts. From 1905 he was bacteriologist of the Connecticut State Board of Health and director of the State laboratory. He made a special study of the bacteriology of dairy products, publishing sev. works on that subject. Other works include *Evolution of To-day* (1886); *The Study of Germ Life* (1897); *The Study of Life's Mechanism* (1899); *The Method of Evolution* (1900); *Agricultural Bacteriology* (1901); *Social Heredity and Social Evolution—the Other Side of Eugenics* (1921).

Conn, Lough, lake in the co. of Mayo, prov. of Connaught, Eire. The R. Castlebar flows into L. C., which in its turn empties itself into the R. Moy.

Connaught (Connaacht), prov. in Eire. On two sides, the N. and W., it is washed by the Atlantic, while on the N. it is bounded by Ulster, on the N.E. and E. by Leinster, and S. by Munster. Area 6610 sq. m. A large part of the prov. consists of a level plain, while the W. and N. is traversed by mts. C. is noted for the beauty of its lakes, the chief being Loughs Conn, Corrib, Mask, and Allen. The chief rive. are the Shannon, the Moy, and the Suak. The coast-line is very much indented, forming large bays, the chief being Sligo Bay, Clew Bay, and Galway Bay. C. comprises the cos. of Leitrim, Sligo, Mayo, Roscommon, and Galway. Pop. 492,800.

Connaught, Prince Arthur (Arthur Frederick Patrick Albert), of (1883-1938), only son of Arthur, duke of Connaught and Strathearn (q.v.); b. at Windsor Castle, Jan. 13, 1883; married Oct. 15, 1913, Princess Alexandra Victoria, duchess of Fife, whose mother was eldest daughter of Edward VII. Privy Counsellor, 1910. Lieutenant, 7th Hussars, 1903. Captain, Scots Greys, 1907; major, 1915; colonel, 1922. A.D.C. to Brit. Expeditionary Force, 1914-16; G.S.O.

(2nd grade), Canadian Corps, 1917-18 (dispatches, twice; C.B.). One of the four counsellors of state during the king's absence in India, 1911-12; and went to Japan as the king's emissary to the emperor. Governor-general of Union of S. Africa, 1920-24.

Connaught and Strathearn, Arthur William Patrick Albert, Duke of (1850-1942), seventh child and third son of Queen Victoria, attended the Royal Military Academy at Woolwich in 1866 and entered the Royal Engineers in 1868, being transferred to the Rifle Brigade the following year. In 1871, the year of his



The Times

THE DUKE OF CONNAUGHT

majority, he received his captaincy and also an annuity of £15,000 from Parliament, which was augmented to £25,000 when, in 1879, he married the Princess Louise Marguerite of Prussia (d. March 14, 1917), youngest daughter of Prince Frederick Charles. Appointed major to the 7th Hussars in 1875, he became lieutenant-colonel of the Rifle Brigade in 1876. During the expedition to Egypt in 1882 he led the Guards Brigade at the battle of Tel-el-Kebir, earning a threefold mention in dispatches and receiving at the same time the order of C.B. He had been created duke of Connaught and Strathearn and earl of Sussex in 1874. In 1886 he received the Bombay command, being also, by virtue of his office, a member of the governor's executive council and, in 1890, on his return, was appointed to the command of the S. dist. as a lieutenant-general, and three years later he became general. In 1900, when Lord Roberts went to S. Africa, the duke took his place as commander-in-chief of the army in Ireland, and in 1902 was promoted field marshal. From 1904 to

1907 he acted as inspector-general of the forces, and as commander-in-chief in the Mediterranean, 1907-9. In 1910 he represented the king on the occasion of the opening of the Union Parliament in S. Africa. Elected master of Trinity House the same year, he was appointed in 1911 to the governor-generalship of the dominion of Canada, which he held till 1916. One of his last official acts as governor-general was to lay the cornerstone of the new dominion Parliament buildings at Ottawa. In 1921 he went to India as the king's representative to inaugurate the new prov. legislative councils of Madras, Bengal, and Bombay. Made a freemason in 1874, he became senior grand warden in 1877, grand master of England, July 17, 1901. His home was Bagshot Park, Surrey; his London residence, Clarence House, St. James's; and his continental retreat, Les Bruyères, St. Jean, Cap Ferrat, Alpes Maritimes. A study of his life, by Sir George Aston, was pub. 1929. He had three children: Princess Margaret (1882-1920), wife of the crown prince of Sweden; Prince Arthur of Connaught (q.v.); and Victoria Patricia, b. 1886, who on her marriage to Capt. (later Adm.) the Hon. Alexander R. M. Ramsay in 1919 was authorised to renounce her title of princess.

Connaught Rangers. The old 88th Foot was raised in Connaught in 1793, to which circumstance it owed its title. In 1881 the old 94th Foot was linked to the 88th under the title of the C. R. In consequence of the inauguration of the Irish Free State some Irish regiments were disbanded in 1922, the C. R. being one. The regiment was with Abercrombie in the 1801 Egyptian campaign, and has twelve honours for the Peninsular war. It went through the Crimean campaign and helped to restore order in the Central Provs. during the Indian Mutiny. In 1877-79 it was fighting in S. Africa and again 1899-1902. During the First World War it raised six battalions which fought in France, Flanders, Macedonia, Gallipoli, Palestine, and Mesopotamia.

Conneaut, small tn., fed by three railways, on Lake Erie in Ashtabula co., Ohio, U.S.A. The first colony in the W. reserve, it owes its commercial importance to an excellent harbour. Jams and other canned goods are made. Pop. 9300.

Connecticut, one of the six of the New England States and of the original thirteen states of the U.S.A. It is bounded on the W. by New York, on the N. by Massachusetts, on the E. by Rhode Is., and on the S. by Long Is. Sound, the area, including land and sea, being 5009 sq. m. The chief rvs. all flow in a southerly direction through gently undulating lands of no great elevation at any part. There are three riv. valleys of importance in the state—the Thames, Housatonic, and the Connecticut—each of the rvs. of which has numerous small tribs. The E. of C. consists mainly of hills with narrow and deep riv. valleys. In the N. the country is mountainous, but the valley of the C. R. is broad and fertile, being mostly of Triassic formation, whereas the greater

part of the rest of the state consists of rocks of granite and gneiss. Brownstone, which is used in large quantities in the cities for building, is quarried at Portland, while good building stone is found on Long Is. Tungsten is mined also, copper, lead, and other minerals being found in places. The climate of the state is subjected to extremes of heat and cold, while the soil in the N. part is fertile and in the S. sandy. There are no great agric. facilities, as a large portion of the soil is not so fertile as that of other states. Hay is one of the most important products and tobacco is grown in the C. valley. Dairy produce and fruit farms are also a source of wealth, and some cereals are grown. C. is a very important manufacturing state, and its position, together with the facilities afforded by its rivs., has largely contributed to this end. Its manufs. are many and varied, the chief being brass, cotton, silk, and woollen goods; carpets, hosiery, leather, boots and shoes. C. ranks high in the matter of education. Yale Univ. has over 1000 teachers and 8000 students; the Wesleyan Univ. and the C. College for Women are other important colleges. It is said to have been the first community in the world to form a written constitution by a social compact. Such constitution was confirmed by Charles II. in 1662. The General Assembly consists of the Senate of thirty-six members and the House of Representatives of 272 elected for two years. Pop. 1,709,000. Prin. cities are Hartford, 166,200; New Haven, 160,600; Bridgeport, 147,100; Waterbury, 99,300; New Britain, 68,600; Stamford, 47,900; Norwalk, 39,800; and Meriden, 39,400. See O. Shepard, *Connecticut, Past and Present*, 1939.

Connecticut River, largest riv. (some 450 m. long) in New England, U.S.A. Rising in the extreme N. of New Hampshire, it forms a boundary between that state and Vermont, crosses Massachusetts, and finally C. where it enters Long Is. Sound at Saybrook, 30 m. E. of New Haven. Its general course is always southerly. For ships of light draught it is navigable as far as Hartford (50 m. up). The W. trib., known as Hall's Stream, separates Canada from the U.S.A. for some distance. The C. is noted for its shad fisheries and drains an area of 11,260 sq. m.

Connective Tissue, mass of cellular tissue and cartilage, serving to support the body and unite its different organs and main tissues. C. T. is varied, but it all arises from a similar source—a layer of embryonic cells existing all over the body. It comprises adipose tissue, in which fatty substances largely replace the cells; lymphoid or adenoid tissue, in which the cells are filled with leucocytes (q.v.); and areolar tissue, which is purely cellular. See also **TISSUE** AND **TISSUE CULTURE**.

Connellsville, bor. of Fayette co. in S.W. Pennsylvania, U.S.A., situated on Youghiogheny R. and served by sev. railways. Here most of the coking coal for iron smelting in America is produced.

There are many manufactories. Pop. 13,600.

Connemara (the Bays of the Ocean), known also as Ballynahineh, forms the westernmost div. of co. Galway, Eire, and is itself subdivided into Joyce co. in the N., C. proper in the W., and Yar-Connaught in the S. In length it reaches for 30 m., whilst its breadth varies from 15 to 20 m. It is noted for its quarries of a green variety of marble. Tourists are attracted by its wild scenery of bogs and mts., lakes, and inlets, whilst anglers are certain of good sport.

Connorsville, situated on the White-water R., 828 ft. above sea level, the cap. of Fayette co. in E. Indiana, U.S.A., and a centre for three great railway systems. Makes automobiles and furniture. Pop. 12,800.

Connétable de France, name used at different periods in Fr. hist. for different offices. Under the early kings it was applied to a dignitary at court, but in the reign of Philip Augustus the commander-in-chief of the army was known as the C. Such was the C. until Richelleu removed him in 1627. But Napoleon revived the office in 1804, giving it to his brother Louis. It was finally done away with when the line of Bourbons was restored.

Connolly, James (1870-1916), Irish Socialist and rebel, was b. near Clones, co. Monaghan; son of a labourer, who in 1880 took his family to Edinburgh. 'Devil' in *Evening News* office, worked in a bakery and a mosaic-tile factory; then, in turn, tramp, navvy, and pedlar. Returned to Edinburgh as corporation dustman. Joined Social Democratic Federation and went to Ireland in 1896 as their emissary. Estab. Irish Socialist Republican party. Lectured in Great Britain and U.S.A., returning to Ireland in 1910. With James Larkin, organised strike of transport workers, 1913. Three years later, as a 'fight against the War,' led Easter Week rising in Dublin. Captured by the Brit.; shot dead at Kilmainham jail, May 12, 1916. See R. M. Fox, *James Connolly: the Forerunner*, 1947.

Connor, par., 1 m. from Kells station, and 6½ m. N. of Antrim, in the S.W. of the co. of Antrim, N. Ireland. Pop. of par., 4500; area 17,140 ac.

Connor, Ralph (Charles W. Gordon) (1860-1937), Canadian clergyman and novelist, was educated at the univ. and at Knox College, Toronto. From 1890 to 1893 he did excellent work as missionary among the lumbermen and miners in the Rocky Mts., and it is on the experiences gleaned during these years of service and adventure that most of his works of fiction are based. Of his novels the best known are *Black Rock* (1898); *The Sky Pilot* (1899); *The Pilot at Swan Creek* (1905); *The Dawn by Galilee* (1909). His later works included *The Arm of Gold* (1933); *Glengarry Girl* (1934); *The Rebel Loyalist* (1936); *He Dwelt Among Us* (1936).

Connotation and Denotation, words used in logic with reference to terms or names. The C. of a term implies certain qualities possessed by the object of which the term

is a name. Comprehension and Intension are words used to express the same thing. The D. of a term shows how many particular objects the name can be applied to, 'extension' being used as synonymous with D. For example, when the term dog is used the C. of that term implies certain characteristics as to size, hairy coats, shape of the animal, fidelity, and other attributes, and it could not be applied to anything else which did not possess all these attributes in conjunction. That is to say, the word dog, when used, calls up certain attributes to any one hearing the term. The D. of this same term dog is the number of particular animals to which this name can be applied, which, of course excludes everything not possessing the essential characteristics necessary to place it in this class. The C. of a term determines its D. Thus, when the term dog is used it can be applied to all animals having hairy coats, a particular size, shape, and certain other characteristics. If, however, the C. is increased, the D. is decreased. So the term white dog, which adds another quality, namely white, will apply to fewer animals, as all dogs of other colours will be excluded. All terms have D., but proper names, according to most logicians, have no C. in that they do not imply any particular attributes.

Conolly, John (1794-1866), founder of the Brit. Medical Association. In 1832 C., together with Sir John Forbes and Sir Charles Hastings, instituted a medical society for the improvement of practices in the provs.—a society which proved to be the Brit. Medical Association in embryo. In his *Construction and Government of Lunatic Asylums* (1847), and *Treatment of the Insane without Mechanical Restraints* (1856), those splendid principles are enunciated which have justly shed renown over C.'s revolutionary and successful administration of the Hanwell Asylum.

Conon: 1. Gk. mathematician, fl. at Alexandria about 250 B.C. Berenice, the wife of Ptolemy Euergetes, lost her hair, which she had dedicated to the temple as an offering to secure her husband's safe return. C. declared that the Coma Berenices (Hair of Berenice) had been set among the stars. (See also COMA BERENICES.) Catullus, who imitates Callimachus, wrote a poem on this incident. 2. Athenian general, played a conspicuous part in the latter half of the Peloponnesian war, when the glory and supremacy of his native city were already waning. In 406 B.C. he was chosen as one of the ten commanders who succeeded the fallen Alcibiades. After the disastrous defeat at Egospotami in 406 B.C., C. was obliged to seek refuge with his friend Evagoras, king of Cyprus. When war broke out between Persia and Sparta, C., together with the satrap Pharnabazus, became commander of the Persian fleet, and in 394 redeemed his former reputation by overcoming the Spartans near Cnidus. But his noblest act of patriotism was the restoration of the long walls and of the fortifications of the Piræus, and the expulsion of the

Lacedæmonian harmosts from many of the seaboard garrisons of the Ægean. Some say he d. in Cyprus about 390, others that Tiribazus, the Persian, had him assassinated, when he came on an embassy from Athens, as a proof of his loyalty to Sparta.

'Conqueror,' name of many Brit. battleships. The most famous were those of Boscawen's victory in Lagos Bay (1579), of Byron's action with d'Estaing (1779), of Rodney's encounters with de Guichen (1780) and de Grasse (1782). There was also a C. at Trafalgar (1805), and at the capture of Simonoseki, Japan (1864). A Dreadnought of this name was built in 1911-12.

Conquest (Lat. *conqueri*, to obtain). In Scottish law, heritable property which came into the possession of the deceased by purchase, gift, or in any other way unconnected with his capacity of heir, from a stranger, or from a relative to whom he would not by law have succeeded, is called C. But the distinction between C. and heritage proper has been rendered devoid of practical significance since the Conveyancing Act, 1874, provided that the fees of C. should descend in all respects in the same way as fees of heritage.

Conquistadores (Sp., conquerors), collective term for the Sp. conquerors of America. The title is applied especially to the great leaders who conquered the natives of Peru, Mexico, and other parts of Sp. America, such as Cortés, Bilbao, Almagro, and Pizarro.

Conrad I. (d. 918), Ger. king, came to the throne in A.D. 911 as the direct line of the Carolingians was extinct. He belonged to a distinguished Franconian family and was related to King Arnulf. His reign was a wearisome succession of wars. Both the Magyars and Normans from without and the stem-duchies from within effectively opposed his schemes of unification, and later the Bavarians and Swabians waged continuous and equal warfare with him. C. tried in vain to get possession of Lorraine, and could make no headway against Henry the Fowler of Saxony, whom he ended by naming his successor.

Conrad II. (c. 990-1039), emperor of the Holy Rom. Empire, and founder of the Franconian line, was a descendant of Otto the Great. In 1024, on the death of Henry II., C. was crowned king by his chief supporter, Arlbo, archbishop of Mainz; but there were many who disputed his sway. The death of Boleslaus, the duke of the Poles, in 1025 removed one of his enemies. In the following year C. assumed the Lombard crown at Milan, and after defeating the inhab. of Pavia and Ravenna, was crowned emperor at Rome in 1027 by Pope John XIX. In 1032 he acquired Lusatia, having worsted Meslaus, duke of the Poles, in sev. engagements, and the next year he was duly crowned king of Burgundy at Peterlingen. After putting an end to the horrid ravages of the Bohemians and other Slavonic tribes he again crossed to Italy in 1036. Here he issued an edict by which in future

the principle of heredity was to apply also to land held by the small vassals. His son Henry, who received Burgundy during his father's lifetime, afterwards became emperor as Henry III. By his decree the law of Justinian supplanted the Lombard law in Italy.

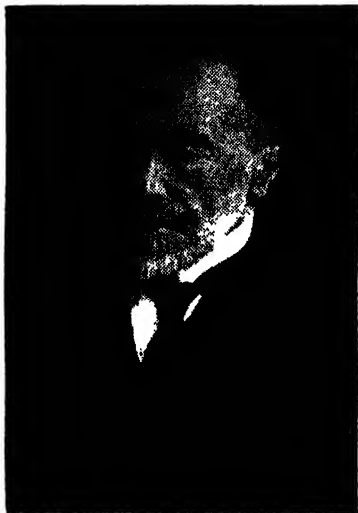
Conrad III (1093-1152), Ger. king, and founder of the Hohenstaufen dynasty, was actually crowned king of Italy at Monza in 1128, but finding it impossible to make good his claims against those of Lothair of Saxony, he finally recognised the supremacy of the latter in 1235. However, Lothair *d.* two years later, and in 1138 the Ger. princes, fearing the growing strength of the Guelph party, offered him the crown. The refusal of Henry the Proud, duke of Bavaria and Saxony, to give C. his allegiance made the latter's position intolerable. Germany, Saxony, Burgundy, and Bavaria were in a state of continued and hopeless civil disorder. Meanwhile Italy was also a prey to the disastrous quarrels of the Guelphs and Ghibellines and other factions. Thus when war was declared between Bavaria and Hungary in 1146, C. gladly seized the opportunity to escape from the endless turmoil, which was offered when St. Bernard of Clairvaux preached a new crusade. C. joined the crusade, but disaster still followed in his track. His splendid troops fell victims in Asia Minor to the ravages of the plague and warfare and C. himself was stricken with disease. Finally, in 1148, he left Palestine broken in health and *d.* at Bamberg with no results to crown his great exertions.

Conrad IV. (1228-54), Ger. king, was the son of King Frederick II. Crowned emperor of the Romans in 1237, two years after he had been chosen duke of Swabia, he at once involved himself in the futile and long-standing quarrel between emperor and pope. Until 1250 he was warring with two anti-kings, and was constantly fighting the leaders of the papal party in Germany. After narrowly escaping assassination at Regensburg, he assumed the title of king of Jerusalem and Sicily, marched to Italy, captured Capua and Naples, and was preparing to return home with a large army when death overtook him in 1254.

Conrad V., *see* CONRADIN OF SWABIA.

Conrad, Joseph (1857-1924), novelist writing in Eng.; *b.* Dec. 3, 1857, at Berdyczow in Podolia, Ukrainian prov. of Poland then under Russian rule. He was the only child of Apollo Nalecz Korzeniowski and his wife Evelina Bobrowska, and was christened Józef Teodor Konrad Nalecz Korzeniowski. His parents were of the landowner class, and his father was involved in the secret national Polish movement. When C. was three his father was arrested and exiled to N. Russia, his wife and child being allowed to go with him under the same conditions of banishment. C.'s mother *d.* in exile in 1865; two years later his father, a sick man, was given conditional parole, and he *d.* in Cracow in 1869, leaving the orphaned C. in the care of his maternal

uncle, Tadeusz Bobrowski. Between the ages of fifteen and seventeen C. astonished his uncle by expressing a determination to go to sea, a strange calling to people belonging to an inland country and devoted to agric. pursuits, but he persisted and in the autumn of 1874 he travelled to Marseilles to become a seaman. After some experience on two sailing ships, he became one of a syndicate of four young men who bought the sixty-ton *Tremolino* and sailed her on contraband activities until she was deliberately wrecked as described in a chapter in *The Mirror of*



JOSEPH CONRAD

the Sea (the vol. of *Memories* and Impressions pub. in 1906). More of this phase of C.'s life is told in the story *The Arrow of Gold* (1919). C.'s first Eng. ship was the *Maïa*, which he joined at Marseilles in April 1878, and it was aboard that vessel that he arrived at Lowestoft two months later and saw England for the first time. After some coastal trips in another ship, he joined, as ordinary seaman, a 'wool-clipper' sailing to Australia; returning to London on a steamship in 1880 he passed examination as mate in June of that year. From then on he served as officer on sev. ships, voyaging to many parts of the world, particularly across the Indian Ocean, and in and around the Malay Archipelago and the gulf of Siam. These are, more or less, the scenes of some of his best-known stories. *Almayer's Folly* (1895), *An Outcast of the Islands* (1896), *The Nigger of the 'Narcissus'* (1897), *Lord Jim* (1900), *Youth* and *The End of the Tether* (1902), *Typhoon* and *Falk* (1903), *The Secret Sharer* and *Freyta of the Seven Isles* (pub. in *Twixt Land and Sea*, 1912), *Victory*

(1915), *The Shadow Line* (1917), *The Rescue* (1920), and others. C. became a naturalised Brit. subject on 19 Aug. 1886, and on 11 Nov. 1886 he obtained his master mariner's certificate. His account of his seamanship examinations are given in *A Personal Record* (1912), which contains, in C.'s revealing yet reticent way, reminiscences of both his life at sea and his youth and ancestry in Poland. His last ship was the *Torrens*, a renowned sailing vessel, which he left in Oct. 1893. Because many of C.'s stories have a setting of the sea and ships, based very often on his own experiences, he has frequently been regarded as a sea-story writer only; but even those stories most concerned with ships and seamen are grounded in C.'s deep insight into human character and the relation of man's innate waywardness and weakness to the simple virtues of fidelity and courage. In stories like *Lord Jim*, *Youth*, *The Secret Agent*, and *Victory*, indeed in almost all C.'s writings, the reader is brought face to face with man alone against the forces of nature or fate, against evil fellow beings, or against a flaw in his own being. The uniqueness of C. in Eng. fiction owes much to an outlook and temperament peculiar to his origins, and his glowing, convincing writing style to the fact that Eng. was not his native language. He belongs both to romanticism and realism; his descriptions of people and places, rich in colour and simile, make one literally see what is happening, and, for all the grandeur of his language, he can be detached to the point of irony. C. began writing in 1890 (*Almayer's Folly*), while in the Belgian Congo Free State through which he travelled to take command of a riv. steamer; from his experiences there he was physically weakened but psychologically awakened. Years later he gave his Congo story in one of his finest books, *Heart of Darkness* (1902), which evokes with bitter irony the tragedy of the lost souls, white or black, in that torrid, fever-ridden land in the early days of its 'development.' *Almayer's Folly*, having been read by Edward Garnett, was pub. in April 1895. Encouraged to continue writing, C. settled down to a shore life, marrying Miss Jessie George of London on 24 March 1896; they had two sons, Borys, b. Jan. 1899, and John Alexander, b. Aug. 1906. His early books were appreciated by a discriminating public and praised by eminent writers; but none of his books attracted a wide circle of readers until *Chance* (1913), which has been called the most Eng. of his books, yet is essentially a C. novel both in theme (the 'aloneness' of de Barral, the financial swindler, of his daughter Flora, and of Captain Anthony) and in construction (the shifting time sequence and the changing presentation from the points of view of different characters, including the 'narrator,' Marlow, who figures in other C. stories). Part of the action of *Chance* takes place at sea, but there are other novels in which the sea plays no part at all, or very little part, and which

show to the full his power of penetration into the minds and motives of men, and his great artistry as a constructive novelist. *Nostromo* (1904), is his longest, and in some ways his greatest novel, the tremendous tale of political intrigue and ambition set around a silver mine on the seaboard of a S. Amer. republic; and two stories of revolutionaries and agents provocateurs are among his best: *The Secret Agent* (1907), a sombre, all-comprehending story of conspiracy, attempted outrage, and family murder, set, behind a quiet interior, in the underworld of Soho; and *Under Western Eyes* (1911), mainly enacted in Geneva, wherein the Russian exiles of those days lead, in an atmosphere of ideas and ideals, a tragic life of political crime, treachery, and self-punishment. His last two novels, *The Rover* (1923), and *Suspense* (unfinished and pub. posthumously, 1925) are of the Napoleonic period; set in the Mediterranean, some of the characters have their prototypes in friends of his youthful days. C. lived most of his writing life in Kent, his last house being Oswalds, in the vill. of Bishopscourt, where his death occurred suddenly, on 3 Aug. 1924. See H. Walpole, *Joseph Conrad*, 1916; F. M. Ford, *Joseph Conrad, a Personal Remembrance*, 1924; *Life and Letters of Joseph Conrad* (ed. G. Jean Aubrey) 1927; *Letters from Conrad, 1895-1924* (ed. E. Garnett) 1928; R. Curle, *The Last Twelve Years of Joseph Conrad*, 1928; Gustav Molt, *The Polish Heritage of Joseph Conrad*, 1930; R. L. Méroz, *Joseph Conrad's Mind and Method*, 1931; E. Crankshaw, *Joseph Conrad, Some Aspects of the Art of the Novel*, 1936; *Conrad's Prefaces to his Works*, with Intro. by E. Garnett, 1937; and M. C. Bradbrook, *Joseph Conrad, England's Polish Genius*, 1941.

Conrad, Michael Georg (1846-1927), Ger. writer, b. in Franconia, Bavaria. He studied modern languages and pedagogy, and taught for three years in Geneva. Among his works are: *Parisiana* (1880); *Französische Charakterköpfe* (1881); *Flammen für freie Geister* (1882); *Die Luletia* (1883); *Lutetias Töchter*; *Pumpkinella* (1889); *Deutsche Weckrufe* (1890); *Geflügelte Masken, Allerlei Charakterköpfe* (1890); *Von Emil Zola bis Gerhart Hauptmann* (1902). His impressionist work in the naturalist manner won him the name of 'the foremost apostle of Zola.' Other writings are *Totenanz der Liebe* (1884); *Die klugen Jungfrauen* (1889); *Was die Isar rauscht* (1889-98); *Fantasio* (1889); *Die Berichte der Narren* (1893); *Majestät* (1902), dealing with the relations of Ludwig II. and R. Wagner. His dramas are *Die Eranzpierten* (1888); and, with Willfried, *Firma Goldberg* (1889) and *Salve Regina* (1899).

Conrad von Hötendorf, Franz, Baron (1852-1925), military commander under Austro-Hungarian Empire; b. in Vienna, Nov. 11, 1852, son of a colonel, served against Bosnian insurrections of 1878 and 1881. A close friend of the Archduke Franz Ferdinand. Appointed chief of general staff, 1906, reorganised artillery. In 1908-9 was for war with Serbia, in

1911, with Italy—overridden by Aehrenthal, in Nov. 1911 was dismissed. Reappointed, 1912; set pace for First World War after Sarajevo murder. Broke Russians on Gallia front, 1915, made field marshal. Displaced by Emperor Charles, commanded on It. front; was defeated S. of Asiago, June 15, 1917. Retired, a baron. Wrote memoirs, *Aus Meiner Dienstzeit*. D. at Mergentheim, Aug. 26, 1925. See von Glaise-Horsteneau, *Collapse of Austria-Hungary*, Eng. trans. 1930.

Conrad von Würzburg (Würzburg) (d. 1287), famous Ger. poet and troubadour of the late thirteenth century. Little is known of his life, but he seems to have spent some time in Strasburg, and later in Basle, where he d. He was influenced by Gottfried of Strasburg, and his work reached a far higher level than that of most of the Middle High Ger. poetry of the period. Among his works are legends of Alexius, Silvester, Pantaloon; *Der Welk Lohn*; *Die goldene Schmiede*; *Klage der Kunst*; two long epics, *Der Trojanische Krieg* and *Partenopter und Melur*. His shorter verse romances are better—*Engelhart und Engeltrut*; *Das Herzezaerre*, familiarised by Uhland's *Kastellan von Coucy*. Examples of his shorter poems may be found in Lambel's *Erzahlungen und Schwänke des Mittelalters*, 1883. See Pfeiffer, *Germania*, iii., 1867; Gölther in *Allgemeine Deutsche Biographie*, vol. xlv., 1898, under 'Würzburg'.

Conradi, Hermann (1862-90), Ger. writer; studied in Berlin, Leipzig, and Würzburg, and early started upon a literary career. He was a leader of the new 'storm-and-stress' period, and a zealous supporter of the naturalistic tendencies of his time. His sketches, *Brudertaten* and *Lieder eines Sünders*, appeared in 1886 and 1887. He also wrote the romance *Phrasen* (1887), followed by *Wilhelm II. und die junge Generation* (1888). His *Adam Mensch* (1889) caused a great sensation, and involved C., Walloth, and Albert in a lawsuit for transgressing public morality. C. d. during the judicial proceedings.

Conradin of Swabia, or Conrad V. (1252-68), b. near Landshut, Germany, was the last Ger. emperor of the Hohenstaufen dynasty, son of Conrad IV. His empire was exposed to the hereditary enmity of the pope by a long minority under Louis of Bavaria. In 1267, unopposed, and supported by the Ghibelline faction, C. entered Rome, but was defeated at Tagliacozzo in 1268 by Charles of Anjou. He was betrayed by Charles and executed at Naples in 1268.

Consaborum, see CONSUEGRA.

Consalvi, Ercole (1767-1824), celebrated It. statesman and cardinal. By 1792 he had obtained the office of auditor de Rota, a member of the highest civil court. C. was wrongfully imprisoned for a time as instigator of the murder of Duphot, 1797. In 1801 he negotiated the Concordat with Napoleon in Paris. Bonaparte had him dismissed from office, 1806, being angered at his defence of Papal supremacy and independence. He

was banished from Rome, 1810. C. was reinstated in office, 1814-23, and governed the Papal states by a most liberal and humane policy. Capital punishment for heresy and torture were abolished, and new laws enacted. The Romans named him 'the great cardinal' for all the benefits conferred upon them. C. retired on the death of Pius VII., 1823; he was recalled by Leo XII. and accepted the honorary office of prefect of the college *De propaganda fide*, but d. soon afterwards at Rome. See J. A. M. Crétineau-Joly, *Mémoires du Cardinal Consalvi*, 1864.

Consanguinity (Lat. *cum*, together, and *sanguis*, blood), or kindred, is the relationship between persons of the same blood. This relationship may be lineal or direct, that is, the relationship which subsists between ascendants and descendants who are in a direct line one with the other, or it may be collateral or indirect, that is, the relationship between two persons, sprung from a common ancestor, root, or stock, but not descended one from another. Laws of inheritance, descent, and in most countries of marriage are largely governed by the ties of C. They differ naturally according to place and country. Thus in some of the U.S.A. the C. of uncle and niece does not prohibit marriage as it does in France (according to the Code Napoléon), England, etc., and—to take an example on the opposite side—the old canon law would not allow persons to marry between whom there was only the seventh degree of C.

Conscience, Hendrik (Henri), (1812-1883), popular Flemish novelist, entered the army, 1830-36, then retired and became known as a composer of songs. In 1837 he produced the romance *In het Vonderjaer* (the Year of Miracles, 1866). The novel *De Leeuw van Vlaanderen* (Lion of Flanders) followed, 1838; and *Phantasia*, a collection of short stories. King Leopold became his patron, and helped him to find employment in his native Antwerp and elsewhere. He was especially distinguished for his writings on Flemish vil. life, and contributed largely to the revival of Flemish literature and interest in the language. C. won the national prize, 1870, with *Bavo en Liekeken*. Other works, trans. into Eng., are *Sketches from Flemish Life* (1840); *The Good Mother* (1852); *Tales of Old Flanders* (1855); *The Poor Gentleman* (1856); *The Headman's Son* (1861); *The Happiness of Being Rich* (1869); *Popular Tales* (1902-6). See E. de Bom, *Hendrik Conscience*, 1912.

Conscience, knowledge within oneself. In ordinary language C. means the inward recognition of what is right or wrong in one's own actions, a moral sense of consciousness. In ethics, however, it has had various special applications, or rather uses, in various schools of moral philosophy, been regarded from different points of view. Thus it may mean simply an ordinary judgment of one's own conduct, using the same criteria or standards, however gained, as one uses in forming judgments about other things and applying them to one's own actions.

It is in this sense a moral consciousness applied to oneself and to one's own actions. On the other hand, it has been pushed to an extreme so that it becomes an intuitive, infallible natural faculty of the mind, a law to itself. The theory that C. is an infallible faculty of the mind is one part of the intuitionist school of ethical philosophy. According to this school, C. as a special faculty at once recognises what is right or what is wrong, whether the person acts or no on its dictates. The part played by C. as a prin. factor in an ethical system has been chiefly discussed and emphasised by the Eng. schools of philosophy. Shaftesbury (1671-1731) drew a close parallel between the sense of beauty and the sense of what is right or wrong; as it is a faculty in the sphere of art, so also is it a faculty in the sphere of action; it is a moral sense which determines the value of actions; according to Shaftesbury it is mainly non-reflective. Francis Hutcheson (1694-1746) developed the moral sense; but he tends to separate the working into two parts, one acting deliberately or deductively, one instantaneously or intuitively, a feeling of satisfaction or dissatisfaction according as actions are good or bad. The moral sense, though acting both deliberately and intuitively, is not, however, the standard of judging moral actions; that is, the general well-being of society, the 'greatest happiness of the greatest number.' It is in Joseph Butler (1690-1772) that we find C. developed in an ethical system to its fullest. He analyses the nature of man into the passions or affections; self-love and benevolence and C. The last is a universal principle of reflection, and virtuous action consists in following its dictates; it judges self-love as that which has weighed the passions in the balance and decided which is to its real interest. C. therefore has an absolute power, and it is the law of our nature, and virtue consists in following it. When analysed further, Butler's C. seems to have no real basis; it does not connect with the will or practical reason. The utilitarian school of ethics dominated Eng. moral philosophy, and the intuitionists, both in the moral sense school and in Butler's C. school, ceased to have influence. Henry Sidgwick in his *Methods of Ethics*, 1874, reconciled the utilitarians and the C. or moral school; the C. or moral sense recognises the general good of the greatest number as the rule of moral conduct. See also ETHICS, and the names mentioned above.

Conscience, Courts of, which were superseded by co. courts, were at one time estab. at Westminster and other commercial centres by local acts of Parliament, for the recovery of small debts, usually under £5.

Conscience Money, is the term which is given to various sums of money received by the chancellor of the Exchequer from anonymous persons who have voluntarily evaded their obligations, more especially as regards taxes, etc. Thus the expression may be aptly described as money paid to score off an old debt and thus relieve the conscience.

Conscientious Objector. This term came into prominence during the First World War, and was applied to those who alleged that they objected on moral or religious grounds to military service in a fighting capacity. Special measures were taken to deal with them in the Military Service Act of 1916 (see CONSCRIPTION), and whilst there was no doubt about the sincerity of the views held by some, there were many who found in it a convenient excuse to avoid going to the front. Many Quakers were and are C. Os., but some were found in the fighting ranks and gained distinction therein. Under the Representation of the People Act, 1918, C. Os. were to be disqualified from voting for five years after the First World War unless they satisfied the central tribunal that they had fulfilled certain conditions, such as employment in work of national importance. This provision, however, proved a dead letter and other penalties imposed on C. Os., such as loss of seniority in the civil service, were later rescinded. Provision was made in the Military Training Act of 1939 for the exemption of C. Os. on their allocation to some suitable form of national service, but only where the objector could satisfy the court of his bona fides. C. Os. in the Second World War were released from further obligations by the National Service (Release of Conscientious Objectors) Act, 1946.

Conscription. What is termed C., or in other words, the compelling every man eligible in the country to make himself efficient for service in the ranks of the national army and take his place therein when necessary, was brought into being in modern times by Napoleon in 1798. It was adopted by Prussia in 1806 after the destruction of its army by the Fr. at Jena, and in that country the system was so perfected that in theory it had, just before the First World War, the most complete fighting machine ever seen. The *modus operandi* in most countries is that every man on reaching a certain age—nineteen, twenty, or twenty-one—has to take his place in the ranks, and undergo a certain period of military training. In some countries all those liable and found fit to serve are enlisted. This prevailed in Germany before 1914 and prevails in France to-day. The exceptions are mainly: only sons or eldest sons of widows, and clergymen, etc. This is not quite the same in all countries, as, for instance, in Spain (prior to the recent Civil war) and Portugal where C. is in force, every man is not directly called upon to serve, but each locality is obliged to furnish a certain number, and on a certain day a ballot is taken, and those who draw numbers corresponding to those required are taken if found fit; any one can find a substitute, and by this means no rich man's son need ever serve. In the Netherlands the army is mainly composed of volunteers, although C. is the law of the land. There is no standing army in Switzerland, but every able-bodied citizen serves in the militia, which is called up for ann. service for a few weeks. The best conscriptive coun-

tries have so legislated that suitable work is found for the conscript when he leaves the colours, and, furthermore, his period of service is never so long as that of men in a voluntarily enlisted army, such as the Regular Army of Great Britain. Arguments in favour and against C. will be found in Lord Roberts, *Fallacies and Facts*, etc., 1911, and Ian Hamilton's *Compulsory Service*, 1910. In the First World War, when whole nations as well as their armies soon became involved directly or indirectly in the struggle, the voluntary system of recruiting the armies of necessity broke down. Under that system in England thousands of young men at once responded to appeals and patriotically left their homes and businesses. Others in far distant corners of the earth also returned to Great Britain prompted by the same motive. But it was only a matter of time when this spontaneous supply would be exhausted and other measures had to be taken to recruit field armies at all commensurate with the vast and growing extent of the military operations. In 1915 there was agitation in Great Britain in favour of C. but Parliament hesitated to adopt an institution which had always been repugnant to Brit. tradition. Lord Derby was then appointed to direct the recruitment service according to a plan which involved an element of compulsion by the introduction of tribunals to decide the appeals in individual cases, enlistment being a condition precedent to any right of appeal. This method was successful up to a point, but the supply of unmarried men, upon which the 'Derby Group System' at first mainly relied, soon gave out and at length Parliament agreed to compulsory service and the first Military Service Act was passed early in 1916. This brought into operation a universal machinery for sifting the manhood of the nation and for hearing appeals for exemption. As the war continued other Acts were brought into force which had for their object the finer 'combing' of the nation as one source after another was drained.

In the U.S.A. those who had closely studied the effect of the war upon the man-power of Great Britain were not slow to advocate some form of compulsory service as soon as war was declared against Germany. In May 1917 the Selective Service Act was passed, under which 1,000,000 men were authorised to be enlisted for 'selective service.' As in Great Britain, the process of passing the men through the medical and physical tests disclosed many surprising facts regarding the general fitness for military service of millions of Amers. With the armistice compulsory service in U.S.A. and Great Britain ceased.

In view of the threatening situation in Europe in 1938-39 the Brit. Gov. in April 1939 decided to introduce a system of compulsory military training as necessary for the safety of the country and the fulfilment of undertakings given to certain countries in Europe (France, Poland, Greece, etc.). The fact was that no one

seriously doubted but that Germany, under the domination of the Nazis, was aiming at the hegemony of Europe and that no time was to be lost in improving the nation's military resources. At this time there was Labour and Liberal opposition to C., both parties opposing the Military Training Bill 1939 on the ground that the Prime Minister, Mr. Neville Chamberlain, had 'violated' his pledge and that C. was not necessary; but what weighed most with Labour was the fear that military compulsion might be extended into industrial compulsion, which, in effect, is precisely what did happen in 1940 when, in the face of great national danger, the Ministry of Labour and National Service was empowered in the national interest to direct persons to various employments. The third reading of the Military Training Bill 1939 was carried by 283 votes to 135. The general council of the T.U.C. co-operated with the gov., and the T.U.C., while still condemning compulsory military training, authorised trade unionists to serve on committees and tribunals to be set up under the Bill. Under Acts passed in 1939 and 1940 the gov. conscripted men between twenty and forty-one, for both military and industrial service and women between twenty and thirty for industrial service. It was at liberty, under the Emergency Powers Act of 1940, to go even beyond these limits, but it preferred not to do so without receiving express permission from Parliament. For this purpose Mr. Churchill, on Dec. 2, 1939, moved in the Commons that the obligation for national service should be extended to include the resources of woman-power and man-power still available. The reason for the crisis was that the great supply plants had now largely been built and it was urgent that they should be fully staffed. Among changes he now proposed were to raise the age limit for military service from forty-one to fifty-one and to lower the minimum limit from twenty to eighteen and a half, at the same time making recruits of nineteen liable for service abroad. Boys and girls between sixteen and eighteen were also to be registered, with a view to enrolment in various youth organisations. Regarding women, the gov. proposed to take powers to draft unmarried women between twenty and thirty not only in industry, but also, under certain limitations, into the women's auxiliary forces, viz. Women's Royal Naval Reserve, the Women's Auxiliary Air Force, and the Auxiliary Territorial Service. On Dec. 9 the minister of labour moved the second reading of the new National Service Bill which embodied the proposals outlined by Mr. Churchill. National service under this Bill included service in the armed forces, civil defence, and industry. Civil defence included the Police War Reserve, the National Fire Service, and the Civil Defence Reserve, but the minister of home security could add any organisation he deemed fit. The idea of conscribing women for military service was repugnant to some members,

and an amendment was moved to exclude them from the scope of the Bill; but this was rejected without a div. and the Bill passed its remaining stages without opposition. Under legislation enacted before Sept. 1939, power existed in Australia and in the Union of S. Africa to require all men to render military service in time of war. Similar legislative provision was made in Canada and New Zealand after Sept. 1939. Men were called up under these provisions in Canada, Australia, and New Zealand. In 1945 they were no longer being called up in Canada or New Zealand and only boys of eighteen were then being called up in Australia. Powers were also taken in many other parts of the empire to call up men for military service and were used in varying degrees.

The National Service Act, 1947, introduced a scheme of compulsory service in the armed forces for all male Brit. subjects between the ages of eighteen and twenty-six, to operate from Jan. 1, 1949, by which date the existing transitional arrangements had ended. National service men, or, in other words, conscripts, serve eighteen months whole time or with the colours, and five and a half years in the reserve, with a period of ann. training. The Act will run until Jan. 1, 1954. The numbers of men of eighteen available in the first five years of the scheme are: 1949, 204,000; 1950, 210,000; 1951, 200,000; 1952-53, 210,000.

In the U.S.A. President Roosevelt on May 30, 1940 stressed the necessity of undertaking immediately 'the training and retraining of their people, especially youth, for employment in industry and in the services of the army and navy.' A Bill for selective training and military service, sponsored by the National Emergency Committee, was introduced in the Senate by Senator Burke and by Representative Wadsworth in the other House on June 20 (1940). It proposed registration of all men from eighteen to sixty-five, numbering 40,000,000, of whom men between twenty-one and forty-five would be eligible for eight months' compulsory military training, those chosen being selected by lot. Both Gen. Marshall, chief of staff, and war secretary Stimson advocated compulsory military service as soon as possible. The Burke-Wadsworth Bill, however, made such slow progress in the Senate Military Affairs Committee that Roosevelt declared (Aug. 2) that he favoured a selective training Bill and described C. as the fairest and most effective means of obtaining man-power. He said that the thirteen months' leeway in 1917-18 during which the U.S.A. had been luckily able to build up an army of 4,000,000 men without attack from a foreign power would never happen again. The National Defence Advisory Commission supported the Military Training Bill, which was at length passed (with amendments) by the Senate Military Affairs Committee on Aug. 5. Amendments restricted the registration age from twenty-one to thirty-one years of age, in place of from eighteen

to sixty-four, which would have affected over 40,000,000 men. With the restricted age-groups a total of 12,000,000 were affected, but deducting workers in essential industries and agriculture and men with dependants, only 4,500,000 remained for immediate selection. The Bill was enacted on Oct. 19 (1940). The debate on the Bill in Congress made only slow progress owing to opposition from the isolationist block. In the House of Representatives the Military Affairs Committee adopted C. as applying to all men between twenty-one and forty-five and omitting any provision for the C. of industry. Final approval was given to the Bill in the House on Sept. 7, after it had reaffirmed an amendment to defer its operation for sixty days. But in the Conference Committee of both Houses, unanimous agreement was reached on Sept. 13 on the main controversial points, including the deferment amendment, which was dropped, thereby enabling the first 400,000 men to be called up as soon as the registration machinery was ready. The conference adopted amended provisions for the C. of industrial plant to the effect that a manufacturer must accept and execute on 'fair and just' terms orders for national defence materials when called upon to do so by the President. The conference report was finally approved by both Houses on Sept. 14. The great majority of Democrats supported the measure, whilst the Republicans opposed it by two to one. On Sept. 16 President Roosevelt signed the Bill.

Consecration. The solemn appropriation of dedication of anything to the service of God. In modern times, the C. of the clergy is called *ordination* except in the case of bishops. For members of religious orders it is named *profession*. When applied to temples and churches it is termed *dedication*. Under the Jewish theocracy not only men and beasts were consecrated to the Lord, but also houses, fields, and the walls of Jerusalem (Leviticus xxvii.; Nehemiah xii. 27). At the exodus from Egypt, the first-born males in Israel, whether of man or beast, were sanctified to God, i.e., were consecrated or devoted to Him—the beasts for sacrifice, the children for redemption (Exodus xiii.). In Christian ecclesiology C. is resolvable into (1) the dedication of persons or things to the service of God with appropriate ceremonies; (2) the formal declaration that in consequence of being devoted to God, they are now sacred. In this context, C. is understood to change, not the nature of the thing, but only the use of it. With respect to the C. of the eucharistic bread and wine, Roman Catholics maintain that a complete change is effected in the thing consecrated. The term C. is used in various special services: viz. of the consecrating of bishops, priests, and deacons; and in the Church of Rome, of the C. of altars, chalices, patens, etc., but specially of the consecrating of churches. Christianity had prevailed for some time before separate buildings were erected for divine worship; when separate

buildings were erected, simple rites of C. followed, and then, by the time of Constantine, these rites had developed into numerous and imposing ceremonies. This is still the case in the Church of Rome.

In England, the legal effect of the C. of a church by a bishop is that none but the worship of the Estab. Church can be permitted within its wall or precincts. As to burial grounds see BURIAL ACTS.

Consecutive (Lat. *consequi*, to follow), term in music applied to recurring intervals, especially to the progression of parallel fifths or octaves, which are forbidden by the strict rules of harmony in part-writing. There are certain exceptions in modern music.

Consequina, see COSEQUINA.

Consent. In criminal law proof of C. on a charge of rape would acquit the prisoner on that charge. C. is no defence to a charge under the Incest Act, 1908, nor to the abuse of a female lunatic, or to a charge of indecent assault on any young person under the age of thirteen. In the Scots law of contract, following the Rom. law of consensual contracts, some contracts may be binding by mere C. without other formalities. Such contracts include partnership agreements, sale, barter, location (hire), and mandatum (bailment). For its legal connotation as a synonym for collusion in the law of divorce, see COLLUSION.

Conservation, Soil, see EROSION; SOIL. FERTILITY OF.

Conservative Club. This was a Tory club, first founded in London in 1840, with its headquarters at 74 St. James's Street. Since 1832 associations known as Constitutional or C. multiplied throughout the country, and eight years later the first regular club was formed.

Conservative Cookery, see under COOKERY.

Conservative Party, name of one of the three chief Brit. political parties. The name implies that the essential characteristic is that its purpose or tendency is to maintain and preserve existing institutions. It was first given by J. W. Croker in the *Quarterly Review*, Jan. 1833, as a more appropriate term than Tory (*q.v.*). It was not at first welcomed by members of the party. The disruption of the Liberal party at Gladstone's first Home Rule Bill led first to the formation of the Liberal Unionist party, the name adopted by those Liberals who dissented from the policy; when these joined with the Cs. in Lord Salisbury's first gov., the name Unionist was used for both wings of the new party. In 1912 the two separate party organisations coalesced, and Unionist became the formal accepted name for the former Liberal Unionist and C. Ps. but with the grant of dominion status to Ireland (see IRISH FREE STATE) the alternative name Unionist has been dropped. The hist. of the modern C. P. begins approximately with the re-organisation of the Tory party by Disraeli late in the forties of the last century. The C. P. are the lineal descendants of the Tory party as re-

modelled by Disraeli, who may be regarded as the founder of modern Conservatism, but as modified by the inclusion of Liberals under Joseph Chamberlain and the late duke of Devonshire, who both refused to follow Gladstone on Irish Home Rule. This fusion of Liberal and C. is significant in that it tends to support the criticism that in some essentials, whether of foreign or domestic policy, there is no great difference between the two great historic parties, who seem to pass and re-pass each other in the course of legislative achievement (see further under POLITICAL PARTIES). The hist. of the Tories goes back to the time of the Civil war in the reign of Charles I., but it is only towards the end of the eighteenth century that the party system begins to assume a form like that of to-day. The Tory party of the eighteenth century was long in humiliating opposition, a consequence of the Jacobite leanings of its leader Viscount Bolingbroke. Branded for fifty years as Jacobites, the Tories were not favoured by Hanoverian sovereigns, whose first minister was always a Whig. But during the Amer. war the party was re-created, Tory and sovereign taking the common if illusory view that the Amer. colonies should remain part of the Brit. Empire. Thereafter for the next two decades, the outstanding features of Tory regime were the Six Acts, passed like the modern D.O.R.A. (*q.v.*), to meet the difficult social conditions following Waterloo; and the Catholic Emancipation Act of 1828. Then came ten years of opposition until Peel led the Tory administration of 1812, with Gladstone as his lieutenant. It was on the rock of the Corn Laws that the party finally foundered; Disraeli was opposed to the repeal of these laws, and with Derby, led the Young England party, the germ of the modern C. P. (see under BEACONSFIELD), and Peel was forced, in 1846, to embrace free trade; but eventually the Tory party turned against him over the Coercion of Ireland Bill, which was thrown out. With Gladstone, Peel then went over to Lord John Russell's group; the split was complete; and Disraeli was left to re-organise the remains of the party. To Disraeli, who consistently supported Lord Ashley in his factory reforms, is due the marked progress in social legislation and the lead in imperial policy, resulting in drawing the self-governing dominions into closer alliance with the mother country, which have been the salient features of Conservatism in recent years. Disraeli's successors as leader of the C. P. were the Marquess of Salisbury (*q.v.*), Mr. (later Earl) Balfour (*q.v.*), Mr. Bonar Law (*q.v.*) and Mr. Stanley (later Earl) Baldwin (*q.v.*), the last-named being claimed to be more consciously imbued with the Disraelian tradition than any of his predecessors. The aims of the C. P. as stated by Disraeli are 'the preservation of our institutions, the maintenance of our empire, and the amelioration of the condition of the people.' In foreign policy 'Peace with Honour' was the slogan

of the party until the time of the 'appeasement' policy towards the Nazis and the Fascists in the 1930's, and the party claimed to have done more than any other party in reducing armaments, and to have played a prominent part in the deliberations of the League of Nations. As to social conditions, the Housing Act of Mr. Neville Chamberlain, when health minister, is in the line of C. tradition, the first great Housing Act being that of Viscount Cross when home secretary. Pensions to widows and orphans, old age pensions for insured men and their wives at the age of sixty-five, and the extension of the franchise to men and women at twenty-one years of age subject only to residential qualification, are other legislative landmarks in the recent hist. of the party. In education, the Act of 1870 was a Liberal measure, but Mr. W. E. Forster, the minister responsible, declared that it could not have been passed without the support of the C. P. owing to the bitter opposition of Liberals like John Bright. The abolition of fees in primary schools, the substitution of inspection for examination, the abolition of payment by results (see under EDUCATION) were effected by C. govts., and in 1902 the so-called Balfour Act, which made so marked an advance towards a co-ordinated system of national education in all its branches, was the work of the C. P. In agriculture, the C. P. claims credit for its de-rating measure, which reform was first outlined by Mr. Churchill's budget of 1928 (see DE-RATING). Finally by its policy of safeguarding (q.v.) the party claims to have restored a measure of prosperity to the lace, the motoring, and other industries (see also PROTECTION). The party suffered a rebuff at the polls in 1924 on the issue of protection when the first Labour Gov. took office; but they were in office again eight months later, mainly through the adroit use made by their followers of the Zinovieff letter (q.v.) and the affair of the Campbell prosecution. In 1929, however, they met with a disastrous reversal of fortune at the general election of that year, the chief issue being the relief of unemployment. A contributory factor to their defeat was the lack of constructive effort implied in their much derided slogan, 'Safety First.' In 1931, however, following the disclosures, in the report of the May Commission, of the deteriorated state of the country's finances and credit—due, however, only in part to the policies of the Socialist Gov.—the C. P. secured 471 seats—being returned as C. National supporters of the first National Gov. (q.v.). They were again successful in the election of 1935—which was fought mainly on the question of sanctions against Italy in the Italo-Abyssinian war. The C. P. in the general election of 1935 won 387 seats, the number dropping to 358 at the dissolution in 1945. In the election of 1945 the party won only 189 seats, as against 393 for Labour—3,500,000 votes being cast for the Cs. as against 12,000,000 for Labour, and 2,225,000 for the Liberal party. At its ann. conference (March 1945) the

C. P. adopted for the approaching general election a programme of which the outstanding features were the abolition of controls and the restoration of private enterprise to the greatest extent possible. This proved to be an invidious programme, for the nation had vivid memories of the inflation and distress which followed the previous world war and which indeed became aggravated ten years later when the unemployed numbered about 3,000,000. The causes of the inflation and unemployment could not be traced to the acts or omissions of any single political party; but it is evident that the general drift of political opinion throughout the world was steadily left-wards in the closing years of the Second World War and after; and the apotheosis of private enterprise and unfettered enterprise was hardly likely to excite the enthusiasm of the common man, who, rightly or wrongly, saw his economic salvation in the tried and untried schemes of the Socialists. See Earl Birkenhead, *Toryism*, 1903; H. Withers, *The Case for Capitalism*, 1925; Lord H. Cecil, *Conservatism*, 1928; A. Bryant, *The Spirit of Conservatism*, 1929; Earl Baldwin, *On England and Other Addresses*, 1938; L. S. Amery, *The Framework of the Future*, 1944; Viscount Hinchinbrooke, *Full Speed Ahead: Essays in Tory Reform*, 1945.

Conservatoire, or **Conservatorio**, name originally given to schools founded on the Continent, especially for studying music and maintaining its purity (Lat. *conservare*, to preserve). The Fr. name is often used for the It. *Conservatorio*, the Ger. *Conservatorium*, and Eng. schools of music also, while the form *Conservatory* is used in U.S.A. The earliest of these institutes originated in Italy; they were primarily attached to some hospital or benevolent institution. The first for which a definite date is given was the *Conservatorio di Santa Maria di Loreto*, in Naples, founded in 1537 and among three other similar schools afterwards estab. in the same city was the *Conservatorio di Sant' Onofrio*, noted for its teachers, such as Alessandro Scarlatti and Durante. Of these four Cs. in Naples, all for boys, only two were in existence by the time of the Fr. occupation in the Napoleonic wars when Murat united the remaining two into the *Real Collegio di Musica* for pupils of both sexes. In Venice there were sev. Cs. for girls at an early date but these disappeared with the decline of the Venetian Republic and the centre of musical training for N. Italy was transferred to Milan, where a large C. was estab. in 1808 by Prince Eugène Beauharnais. The *Ecole Royale de Chant et de Déclamation* was founded in Paris (1784) for training opera singers. During the revolution the *Institut National de Musique* was erected (1793), the name changing to C. de Musique (1795). Among its most famous directors have been Sarrette (1784-1814), Cherubini (1822-42), Auber (1842-71), Ambroise Thomas (1871), Dubois (1896), and Fauré (1905-20). A still more famous con-

tinental institution is the Conservatorium at Leipzig, founded by Mendelssohn (1843), expressly for instrumental music. Other important European Cs. (including those in existence before the Second World War) are at Prague (founded 1811), Vienna (1816), Brussels (1833), Cologne (1849), Munich, Stuttgart, and Berlin (founded by Joachim (1869). Corresponding Eng. institutions are the Royal Academy of Music (founded 1822, incorporated by charter, 1830), Royal College of Music (1882), and the Guildhall (1880). The chief in U.S.A. is the National Conservatory of Music of America (New York, 1885). There are two in Boston (1867, 1870).

Conservators of the Peace, predecessors of the modern justices of the peace, but invested with powers far inferior to the latter. They were the authority to take sureties for peace and good behaviour. Certain high functionaries were general C. *ex officio*, e.g. the king, the lord chancellor (q.v.), the judges of the court of king's bench, and the master of the rolls. Other officers were C. only in special places, e.g. the common pleas judges, and barons of the exchequer.

Consett, tn. and eccles. par. (Consett Christchurch) of Durham, England, 12 m. from Durham. It has iron works and coal mines. Pop. 12,250.

Conshohocken, bor. of Montgomery co., Pennsylvania, U.S.A., on the Schuylkill R., 13 m. from Philadelphia. Founded in 1830, it was incorporated as a bor., 1852. It has large cotton, woollen, and rolling mills, foundries, furnaces, surgical instrument works, stone quarries, steel mills, and boiler shops. Pop. 10,700.

Considérant, Victor Prosper (1808-93). Fr. Socialist, and the chief apostle of Fourierism. He ed. the *Phalange* and *Phalanstère*, journals, setting forth their views. Having obtained financial assistance from an Englishman, Young, he estab. a Socialist colony in the dept. Eure-et-Loire, 1832, but the experiment failed. He then founded the *Démocratie Pacifique* in 1845 for the purpose of promoting his views. In 1848 he was a member of the Constituent Assembly, and acted with the 'Mountain' party. Accused of treason, C. fled to Belgium, 1849. He went thence to Texas, and founded a Socialist community, La Réunion, near San Antonio, but the insurrection of the South ruined this enterprise. He returned to France, 1869. Among his works are *La Destinée sociale* (1834-38), dedicated to Louis Philippe; *Débacle de la politique* (1836); *Principes du socialisme* (1847).

Consideration. All contracts not under seal require valuable C. to make them enforceable. The generally accepted legal definition of valuable C. is 'some right, interest, profit, or benefit accruing to one party, or some forbearance, detriment, loss, or responsibility given, suffered, or undertaken by the other.' A specialty contract (i.e. one under seal) is said to require no C., because of the legal dogma that a deed imports C., a fiction which probably owes its origin to the peculiar

sanctity that has attached to deeds (or charters as they were once called) from the earliest days of the Eng. legal system. No simple contract can be enforced unless supported by valuable C. For example, A promises verbally or in writing not under seal to give B £100 for no C.; B cannot enforce the promise against A. Again A owes B £100, and pays him £75 which B accepts 'in full satisfaction.' B can, none the less, sue A for the remaining £25, though it would be otherwise if A had paid £75 and given in addition some article, however trifling, by way of C. Cs. are sometimes divided into valuable and good Cs. A good C. is that of natural affection between blood-relations, but it is not sufficient to maintain the validity of a conveyance of property against the claim of a subsequent purchaser for value. C. need not be adequate to the promise offered by the other party to a contract, but must be of some value; it must be legal; e.g. lending money to gamble in differences on the Stock Exchange could not be recovered (see under DIFFERENCES); and it must not be past, but must be either present or future (see also under EXECUTORY). As a corollary of the above rules it is to be noted that neither motive nor moral obligation amounts to C., therefore, if A saves B's life and B afterwards promises A £100 out of gratitude, A cannot recover the money from B or out of B's estate. Lastly C. must move from the promisee, which may be differently expressed by saying that no stranger to the C. can take advantage of a contract though made for his benefit (see under CONTRACT). See Sir W. R. Anson, *Principles of the English Law of Contract*, 1834.

Consignment, commercial term used of the dispatching of goods for delivery to a purchaser; it is particularly used in the shipping of goods; the person dispatching goods is the consignor, and the person to whom they are dispatched is the consignee. See BILL OF LADING.

Consistory Courts, which were founded by William I., now exist in every diocese of England. They are eccles. courts controlled by chancellors appointed by a bishop or archbishop. Their business is now almost restricted to the dispensing of faculties for which application is still made according to forensic procedure. Until the Act of 1857 they assisted in exercising jurisdiction over testamentary and matrimonial disputes. By an Act of 1892 a clergyman accused of immorality may be tried in a consistory court.

Consolato del Mare, see CONSULATE OF THE SEA.

Consolidated Fund. The fund of the national exchequer comprising the produce of the extraordinary revenues of the Crown. The fund was so named from the fact that it was consolidated out of what previously had constituted distinct funds—the aggregate, the general, and the S. Sea funds. It was first formed in 1788, and afterwards by the 56 George III. c. 98, the Irish exchequer was amalgamated with it, and it then became the C. F. of the United Kingdom, the whole

fund being pledged in the first place for the payment of the interest of the national debt, and then in reduction of the capital. But before any part of the revenue can be so appropriated, Parliament raises out of it an ann. sum for the maintenance of the royal household and the civil list. The extraordinary revenue which goes to make up the C. F. is either permanent or annual. The ann. revenue is supplied by taxes annually, and in theory at least, temporarily imposed, e.g. income tax; and it may vary from year to year. The revenue paid into the C. F. may be said to comprise the following: Customs (*q.v.*), excise (*q.v.*), death duties (*q.v.*), stamp duties, land tax, inhabited house duty, income tax, income from Crown lands (*q.v.*), Suez Canal shares, post office receipts, and miscellaneous heads of taxation. These various taxes are all paid to the gov.'s credit at the Bank of England, and may not be paid out except by statutory authority. See Sir W. R. Anson, *Law and Custom of the Constitution*, 1886-92.

Consolidated Goldfields of South Africa. This company was formed in 1892 by the amalgamation of other similar undertakings, of which Cecil Rhodes (*q.v.*) was the leading spirit. It originated as the Goldfields of S. Africa Company, formed by Cecil Rhodes and Charles Rudd to exploit concessions given by Lobengula, the famous Matabele king.

Consolidation Acts, or Consolidation of Statutes, species of codification, or digest. The avowed object of a Consolidating Act is to incorporate in one repealing Act all the existing law on any one topic, together with necessary amendments, but otherwise without making any change in the pre-existing law whether statute or common law. Many C. A., however, either from faults inherent in draughtsmanship, or from the difficulty of giving adequate expression to ill-considered amendments, fall short of accomplishing this ideal; and, further, many sections being really based upon the *rationes decidendi* (principles of decision) of reported cases either do not give effect to the spirit of the decision, or fail of universal application, either because the decision was appropriate only to the facts of the particular case or because the necessary elimination of those facts in the section render the statutory language ambiguous. Examples of C. A. are the Criminal Law Consolidation Acts, 1861, Bills of Exchange Act, 1882; The Sale of Goods Act, 1893; Companies (Consolidation) Act, 1929; Children Acts, 1908-33.

Consols, term commonly used to denote a considerable portion of the national debt of Great Britain, but more correctly known as the 3 per cent consolidated annuities (see under CONSOLIDATED FUND). An Act passed in 1731 consolidated certain perpetual and lottery annuities bearing interest at 3 per cent, and these consolidated annuities formed the basis of the C. The interest on C. was reduced by an Act of 1888 to 2½ per cent, and in 1905 it was further reduced to 2¼ per cent. The value of these C. when first issued

against existing securities was £9,127,812, but this amount was increased later to over £100,000,000. By 1888 this figure had been reduced by purchase in the market and by conversions into terminable annuities to £322,681,000. In 1889 Mr. Goschen, the chancellor of the Exchequer, redeemed this large amount of stock, and the old 3 per cent C. which for so long had been looked upon as the standard security of the London market are fading into the limbo of things forgotten. Since the First World War C. have formed but a small part of the total national debt of Great Britain. The term C. has in late years been applied to certain other securities, such as New Zealand 5 per cent C. These are so named by dealers on the exchange because the word is less cumbersome than consolidated stock.

Consonance, in music, is applied to a combination of notes which when sounded together produce an agreeable effect, as for example, the octave.

Consort (Lat. *consors*, partner, sharing in), literally one who throws in his lot (*sors*) with another. In Eng. constitutional law the term is applied to the husband or wife of the reigning sovereign, viewed in a public capacity, as sharing to a certain extent in the royal prerogative. The title has been familiar in England since it was conferred on Prince Albert in 1857 by letters patent. A consort is a subject of the sovereign, and may be guilty of treason against the latter. A queen consort is entirely independent of her husband's control, and is regarded in legal proceedings as a *feme-sole*. She has her particular revenue, and certain exemptions and privileges.

Conspicuous Gallantry Medal. Instituted for award to men of the Royal Navy and Royal Marines who performed exceptional acts of bravery in action during the Crimean war. In 1874 it was re-instituted for award for similar purposes and made applicable to any campaign. It is virtually the naval counterpart of the military Distinguished Conduct Medal.

Conspicuous Service Cross, Brit. decoration, instituted in 1901, to be conferred on warrant and subordinate officers for gallantry and devotion before the enemy. The first recipients of the cross were gazetted on July 2, 1901.

Conspiracy may be categorically defined in law as an agreement between two or more persons to do an unlawful act or to do a lawful act by unlawful means. Much obscurity has always characterised what seems now to be definitely regarded as a substantive offence. The difficulty in principle lay in the confusion arising from the fact that, generally speaking, nothing can be unlawful, civilly or criminally, in two or more persons which would not be unlawful if done by one person, or if done without such previous agreement. The substantive wrong of C. was really developed as an action on the case (*q.v.*) or, in other words, was inducted from the consequential damage generally following on a conspiratorial agreement. Something more was required, however, than

the mere fact of damage, for damage *sine injuria* (q.v.) is necessarily no wrong, and the injurious element was deduced generally from the fact that such agreements as were held to be Cs. were characterised by some ultimate malicious object or wrongful means of execution. While, therefore, defining C. in the above manner, it must always be remembered that to agree to persuade a man, *without unlawful means*, to do something he has a right to do, or to abstain from doing what he has a right to abstain from doing, can never be actionable, although done to the prejudice of a third person, and although done with a malicious motive. C. as a criminal offence is classed by text writers under three heads: (1) where the end is in itself a crime; (2) where the means are unlawful but the end is lawful; (3) where the end is to injure a third person or a class though, if the wrong were inflicted by a single individual, a civil wrong only and not a crime would be committed. The whole gist of C. is the *combination*, so that a single person could only be convicted if his fellow conspirators were either dead, unknown, or not in custody for some reason or other. It is now settled law that an agreement by two or more persons to do certain acts may be criminal, although those acts if done by one person might not render him liable to any proceedings whatever. It is clear, e.g., that numbers may coerce and intimidate where a single individual could effect nothing. In regard to (1) above, a C. to commit murder is dealt with by a statute which makes it punishable with penal servitude up to ten years. Unlawful interference with trade by combinations and especially by combinations of workmen against employers form the most striking example of Cs. under (2). Workmen may lawfully combine to protect their interest, but may not, theoretically at all events, interfere with the right of such of their class as do not wish to join the combination. The Conspiracy and Protection of Property Act, 1875, expressly makes punishable as crimes by imprisonment not exceeding three months, or a penalty not exceeding £20: (a) coercion of a person by violence or intimidation manifested either towards himself, his wife, or children, or his property; (b) persistently following a person about from place to place; (c) hiding his tools or other property; (d) picketing, i.e. watching or besetting a person at his house or place of business, or for two or more persons following a person about in the streets in a disorderly manner. This has been altered by the Trades Disputes Act, 1906, which allows peaceful picketing for the purpose of communicating information, by persons acting in furtherance of a trade dispute; (e) for an employee of a gas or water company wilfully and maliciously to break his contract of service with the knowledge that such breach will cause a failure of gas or water; (f) wilful or malicious breach of contract endangering human life, or tending to cause serious bodily injury or expose valuable property to destruction. By the combined opera-

tion of section 3 of the Act of 1875 and section 1 of the Act of 1906, trade disputes stand above the ordinary law in some of their probable consequences; for if, in connection with such a dispute, two or more persons combine to do an act which if done by a single individual would not be punishable criminally, they will not, merely because of their number, be liable either to criminal proceedings or to a civil action. See also COMBINATION, LAWS OF. See F. Pollock, *The Law of Torts*, 1929; Sir W. O. Russell, *On Crimes: a treatise on felonies and misdemeanours* (9th ed. by Lt. E. Ross), 2 vols., 1936.

Constable, Archibald (1774-1827), famous Scottish publisher, founder of the *Edinburgh Review* (1802), which he managed for twenty-four years. He pub. Scott's first original work in 1805, and gave him £1000 for *Marmion* (1807). Constable & Co. also pub. most of Scott's prose works from 1813 to 1820. In 1825 C. failed for about £250,000. This failure, together with that of the printers, Ballantyne & Co., involved Scott in the heavy loss of £120,000. C. wrote a *Memoir of George Heriot*, and ed. a *Chronicle of Frise, being the Diary of John Lamont of Newton from 1649-72* (1810). He purchased the copyright of the *Scots Magazine* in 1801, and the copyright and stock of the *Encyclopædia Britannica* in 1812. *Constable's Miscellany* was started in 1827. See J. G. Lockhart, *Memoirs of the Life of Sir Walter Scott, Bart.*, 1837-38; T. Constable (his son), *Archibald Constable and his Literary Correspondents*, 1873.

Constable, Henry (1562-1613), Eng. poet, graduated from Cambridge 1580. He early turned Rom. Catholic, and spent much of his time abroad in Paris. In 1598 he was trying to form a new Eng. Catholic college in Paris. C. came to London, 1603, and was confined in the Tower for about a year for certain anti-Brit. activities in France. He was a friend of Sidney, Harrington, and Bolton. His *Diana: the Praises of his Mistress in certaine sweete sonnets by H. C.*, was pub., 1592, and is a series of twenty-three sonnets, praised by Jonson and others. C. also wrote sixteen *Spiritual Sonnettes to the Honour of God and his Sayntes*, by H.C. (these were first printed by T. Park from MS. in 1815), and *The Shepherds Song of Venus and Adonis, in England's Helicon* (1600). W. C. Hazlitt collected his works in 1859. See T. Warton (the younger), *The History of English Poetry*, 1774-78.

Constable, John (1776-1837), Eng. landscape painter, was the son of a mill-owner of E. Bergholt, Suffolk. Even in the days when he attended Dedham Grammar School all his spare hours were devoted to painting. Thus, although he was at first sent to work in the windmill, his father soon yielded to his passion for art, which had been fostered by his friendship with Sir George Beaumont, and by his study of Claude's 'Hagar and Ishmael,' and in 1795 allowed him to go to London to consult Joseph Farington, R.A., whose modern fame has been established by

the discovery of his MS. diary in 1921. The final result of this visit, during which he was taught etching by J. T. Smith (*q.v.*), was that in 1799 he entered the Royal Academy schools, and definitely embraced the career of painting. Three years later he exhibited for the first time at the academy. In 1816 he married Mary Bicknell, after a weary period of waiting due to the opposition of her relatives. The year 1819 is important not only as the date of his election as an associate of the Royal Academy, but also as that in which he received £3000 in



N. P. G.

JOHN CONSTABLE
From his self-portrait.

legacies—a timely gift which considerably relieved his monetary anxieties. Two years later he gained a gold medal at the Paris Salon for his splendid picture 'The Hay Wain,' and in 1825 he won another at the Lille exhibition for his 'White Horse.' His financial position was finally established in 1828 by an inheritance of £20,000 from Mr. Bicknell, but any gratification he might derive from this gift was at once swallowed up in the inconsolable grief which he felt at the loss of his wife in the same year. He never recovered from the shock of her death, and his own death in 1837 was due as much to nervous depression as to any physical weakness. The great part of his life had been spent in London, latterly at Hampstead. His work may be studied in the national collections at Trafalgar Square, St. Kensington, and Millbank. Like most young painters, he began, by observing truth at second hand, copying Claude and

Ruysdael and imitating the technique of Girtin, Gainsborough, and the old Dutch masters. This period of apprenticeship lasted till 1806, the year of his visit to the Eng. lakes. The altar-piece which he executed in 1804 for Brantham church is in the manner of Benjamin West, at that time president of the Royal Academy, and a kind patron to C. From 1806 to 1809 he was for the most part engaged in copying portraits by Hoppner and Reynolds, and seriously studied the science of oil-painting. The turning-point in his career was his exhibition of 'Dedham Vale' in 1811, in which he first gave his talent free scope and began to develop his striking originality. C. was thus a long while reaching his artistic maturity. His range of subjects was limited, being mostly restricted to the scenery of Suffolk, Salisbury, Hampstead, and Brighton, but he really knew the old mills and rustic bridges, the great trees and the torrents, the corn-fields, and above all the skies that he depicted. His experience as a miller must have taught him to study the clouds: at least he is unequalled in his presentation of the sky in April before a heavy shower, or of the lowering clouds that presage the storm's approach. Truthfulness is the salient feature in his detail, his broad composition and his atmospheric effects. His pictures seem to breathe the life of the farmyard and the fields. Their fresh, natural colours are not the least of their merits. In his vivid tones C. was following the example of Rubens and Claude, so that it is untrue to regard him, as was not infrequently done, in the light of an opponent of the old masters. It seems that the Impressionist school learnt from C. the fine effects of splashes of warm colour. But C.'s reputation rests not on the peculiarities of his technique, but on his faithful portrayal of the beauties of Eng. landscape and rustic life, and especially of the light-and-shade effects of rain clouds through which the sun's rays are doing their best to penetrate. It is a pity that Ruskin in his admiration of Turner and the Pre-Raphaelites should have been blinded to the true greatness of C. High prices are given for his pictures. Thus 'Dedham Mill' was sold in 1848 for £550; and a free study in pencil by C. for his picture 'The Leaping Horse' was sold in the same year for £40. The mezzotints of David Lucas (1835) are among the finest engravings after C. Among his many pictures are 'The Leaping Horse' (1825), perhaps his masterpiece; 'The Cornfield' (1827); 'Dedham Vale' (1828); 'Hadleigh Castle' (1829); 'Salisbury Cathedral' (1831); and 'The Valley Farm' (1835). See C. R. Leslie, *Memoirs of the Life of John Constable*, 1843; C. J. Holmes, *Constable and his Influence on Landscape Painting*, 1902; A. B. Chamberlain, *John Constable*, 1903; H. W. Tompkins, *In Constable's Country*, 1906; E. V. Lucas, *John Constable, the Painter*, 1924; S. Key, *John Constable, his Life and Work*, 1948.

Constable (O.F. *unstable*, from Late Lat. *comes stabuli*, count of the stable,

marshal), word of widely different meanings in different countries and at different periods in the same country: (1) In France in the Middle Ages the C. of France had the chief command of the army and jurisdiction in military offences; he also had the control of all matters relating to chivalry. One of the most celebrated holders of the office was Bertrand du Guesclin. The office was finally abolished in 1814. (2) In England the lord high C., appointed after the Conquest as an officer of the Crown, had duties not dissimilar to those of the C. of France. For centuries the office was hereditary in the families of the earls of Hereford and Essex, and afterwards of the dukes of Buckingham. The office has been extinct since the attainder (*q.v.*) of the duke of Buckingham in the reign of Henry VIII., although it has been revived *ad hoc* on such special occasions as a coronation, when the earl marshal assumes the functions. (3) High Cs. were appointed in England from the reign of Henry VII. They were chosen at the court-leets of the hundred over which they presided. They were appointed to keep the peace in their sev. dists., but are now virtually *ad libitum* being only appointed when the co. justices deem it advisable. (4) Petty or par. Cs. were appointed to maintain the peace in manors, vills., and tithings when increasing pop. made the duty too onerous for high Cs. alone. Par. Cs. are practically abolished by 35 & 36 Vict. c. 92, which estab. the co. constabulary, and provided that par. Cs. should only be appointed by the magistrates of general or quarter sessions when deemed necessary. (5) Special Cs. were often sworn in by justices when disturbances existed or were apprehended. The necessity for both high and petty Cs. has been obviated to a great extent by the institution of (6) the modern police force, which dates from the Metropolitan Police Acts of 1831 and 1840, and, so far as bors. are concerned, the Municipal Reform Act, 1835 (see POLICE). The police force of each co. is under the control of a chief C., who may appoint Cs. and superintendents, subject to the approval of the justices in petty sessions. The appointment of bor. Cs. is now regulated by the Municipal Corporations Act, 1882.

Constance (Ger. Konstanz), Ger. tn. in Baden, stands on the S. side of the lake of the same name, where the R. Rhine flows out of it about 30 m. E. of Schaffhausen. The tn. is a picturesque one, the cathedral, which was built about the eleventh century, being famous. Here some of the sittings of the council of C., 1414-18, took place, and others were held in the Kaufhaus—Jerome of Prague and John Huss being condemned at this council were burnt at the stake in 1416, and a boulder 10 min. W. of the tn. marks the spot. The Dominican convent, now a hotel, and the tn. hall are also noteworthy. The market-place contains the house where Frederick Barbarossa signed the peace of C. in 1183. There are iron and textile industries and a very considerable trade principally with Switzerland. It is connected with one of

its suburbs by a bridge crossing the Rhine. C. was in very early times an important tn., being the see of a bishop; it belonged to Austria until 1805. Pop. 36,200.

Constance, Council of. This council was called together for the purpose of reforming the church. The Emperor Sigismund and Pope John XXIII. with many church dignitaries and men holding high office in the state sat on this council, which lasted from 1414 to 1418. There were at the time three popes, Gregory XII. and Benedict XIII. sharing their power with John, and as the object of the council was to secure unity in the church the only course open was to do away with this div. of rule, which was effected by the deposition of all three and by the election of Martin V. The general reform, however, which had been hoped for, was not brought about, although it was decreed that councils were to be called periodically and that in the case of schism the final decision should lie with them.

Constance, Lake of (Ger. Bodensee), lies between Switzerland, Germany, and Austria. It is about 45 m. long, 8 m. broad, and 1305 ft. above sea level. At its N.W. extremity it divides into two, the N. branch being called the Überlingen Lake and the S. the Untersee. This lake has sev. tribes, the largest one being the Rhine which flows right through it, while among its smaller ones are the Argen, the Schussen, and the Aach. L. of C. sometimes rises considerably above its usual height owing to the melting snow, but it is hardly ever frozen over. There are two is. in the lake, Reichenau and Mainau, and sev. tns. on its banks, the chief being Bregenz, Lindau, Friedrichshafen, Überlingen, and C. There is also a regular steamboat service on the lake.

Constans I., Flavius Julius (A.D. 337-350), Rom. emperor, youngest son of Constantine the Great and Fausta (c. A.D. 320-50). Made Caesar in 337, he became joint emperor with his brothers, Constantine II. and Constantius II., in 337. Italy, Africa, and W. Illyricum falling to his share. In 340 he defeated Constantine, who fell in battle near Aquileia, thus becoming master of the whole W. He favoured Athanasius, who was proscribed by the Arians, but was weak and depraved in character. He was killed while hunting in Gaul by an emissary of the usurper Magnentius.

Constans II., Flavius Heraclius, elder son of Constantine III. (A.D. 630-68), emperor of the E., 641-68. He lost Syria, Cyprus, Rhodes, and Africa to the Saracens and Arabs, being defeated by the latter at sea, off Lydia, 655. He also fought unsuccessfully against the Slavs around the R. Danube, and lost N. Italy to the Lombards, 641. His attempts to reconquer Italy (662), and make Rome the empire's cap., were futile. He favoured the Monothelites, and to end controversy between them and the orthodox issued an edict forbidding all religious discussion. C. was generally hated, as cruel and avaricious, and was

probably assassinated. His son Constantine IV. (Pogonatus) succeeded him. See Abulfeda, *Annales*.

Constant, Jean Joseph Benjamin (1845-1902), Fr. painter and writer on art. He studied under Cabanel. Quite early he exhibited in the Salon; his 'Hamlet' was bought (1869) by the Fr. Gov. He began to paint Oriental subjects during travels in Spain and Morocco; his best E. pictures, the 'Prisoners of Morocco' (1878), now in the Bordeaux museum, and 'The Last Rebels,' now in the Luxembourg, Paris, are sensuous in feeling and colour. He decorated later the ceiling in the Opéra Comique and the ceiling of the Hôtel de Ville, Paris; and dramatic panels in the New Sorbonne. There is a fine series of his portraits, for which he was highly esteemed, in the Toulouse museum. He painted a portrait of Queen Victoria which was exhibited at the Royal Academy in the year of her death (1901). Among his works are 'Samson et Dalila' (1872); 'Mohammed II.' (1876); 'Le Jour des Funérailles' (1889); and portraits of M. Hanotaux (1898), Pope Leo XIII., M. de Blowitz (1902), and Queen Alexandra (1901).

Constant de Rebecque, Henri Benjamin (1767-1830), Fr. statesman and philosopher, was b. at Lausanne of Huguenot



HENRI BENJAMIN CONSTANT

parents and settled in Paris at the commencement of the Revolution. The influence of Mme de Staël and Talleyrand may be traced in his *Mélanges de littérature et de politique* (1829). C. was expelled from France in 1802 along with Mme de Staël for denouncing the military ascendancy of Napoleon, and lived for a time at Weimar in the society of Goethe and Schiller; but he modified his views,

and in 1814 returned to support the Bourbons and constitutional liberty. His chief work is *De la religion* (1824-1830), in five vols. (he was a rationalist in religion); he wrote also *Cours de politique constitutionnelle* (1817-20), in four vols. His celebrated novel *Adolphe* was first pub. in 1816. See G. Ripley, *Specimens of Foreign Standard Literature*, 1838-42; biography in Fr. by Ricard, 1888; *Journal intime de B. Constant* (covering the period 1804 to 1816), 1894; and *Le Cahier rouge* (autobiography from 1767 to 1787), 1907.

Constant, in mathematics, a quantity that never changes its value throughout an investigation or process (in contradistinction to variable quantities), often used, as in the differential calculus, to determine a series of changeable values. An absolute C. is one whose value is exactly the same under all circumstances (e.g., any cardinal number); an arbitrary C. is an undetermined C. in a differential equation, keeping the desired value assigned to it unchanged during all changes in the value of the variables. Examples: circular C., C. of aberration, gravitation, tidal Cs.

Constanta, Constantza, or Kustenji, seaport on the Black Sea, at E. end of Trojan's Wall, is the prin. port of Rumania, and exports large quantities of grain, petroleum, and livestock. It has a fine harbour, opened in Oct. 1910. There are nearly three m. of quays, and a pipe-line runs to the Rumanian oil fields. The commerce of the port amounted to 2,000,000 tons in 1927. Tomi, famous as the place of Ovid's exile, was its anct. name. A battle was fought between Russians and Turks at C. in 1854, and it was severely damaged in the First World War, being occupied by a Germano-Bulgar army in Oct. 1916. In the Second World War the Russians launched an offensive in Rumania against the Ger. and Rumanian forces on Aug. 22, 1914, and captured C. on Aug. 29. Pop. 79,700.

Constantia, tn. in Cape Prov. lying under Table Mt. Originally an old Dutch wine farm and founded by Simon van der Stel about 1690. A famous Cape wine derives its name from this place. Pop. 4000.

Constantina, tn. in the prov. of Seville in Spain. It has lead mines, and the trade is chiefly in timber and cork. Pop. 10,000.

Constantine II., see CONSTANS I.

Constantine III., son of the Emperor Heraclius. He succeeded in 641 and d. in the same year. His short reign was full of disorder and constant internal strife. His death is supposed to have been due to the hatred of his stepmother, who is alleged to have poisoned him.

Constantine IV., Pagonatus (668-685), son of Constant II. The earlier part of his reign was occupied in a campaign in Sicily, where a usurper had been declared emperor. Immediately after he had successfully put an end to this trouble, he was occupied in a struggle with the Arabs, who were finally forced to sue for terms. Nevertheless, although successful

in these two ventures, he was unable to prevent the settlement of the Bulgars and the setting up of a Bulgar kingdom (679).

Constantine V., Copronymus (740-775), son of Leo III. the Iconoclast. A far-seeing and capable emperor, who did much to encourage trade, restore prosperity, and strengthen the empire. Nevertheless, owing to his religious convictions and his ceaseless persecution of the monks, he is generally described by contemporaries as an iniquitous and harsh king. He caused the iconoclastic doctrines to be upheld throughout the empire, and so caused the defection of the papacy, which from this time ceases to be dependent upon the emperors, and looks for help rather to the W. and the Franks. He engaged in campaigns against the Arabs, Avars, Slavs, and Bulgars. Whilst pursuing the latter campaign he was taken ill and d.

Constantine VI. (780-97), last of the Isaurian emperors. He succeeded at the age of ten, and the empire for the next few years was ruled by Irene, the empress-mother. His mother continued to rule after C. had come of age, and although he seized and imprisoned her, nevertheless she again became powerful, and caused C. to be seized and blinded. His reign was disastrous, and during it the Arabs and Bulgars won many successes. See A. Lombard, *Études d'histoire byzantine*, 1902.

Constantine VII., Flavius Porphyrogenitus (905-59), emperor of the E., was the son of Leo VI. by his concubine Ioc. His father had great difficulty in obtaining recognition of his legitimacy. During the early part of his reign the empire was administered by the Adm. Lecapenus, with the influence of Ioc to support him. Finally Lecapenus was driven into a monastery, and C. obtained real power. He was not unpopular, and his reign on the whole was a good one. He wrote a number of books, and from these we obtain much of our information on this period. His *De Administrando Imperio* was written to aid his son Romanus in the government of the empire. By this same son he was poisoned.

Constantine VIII., the bestowee sometimes on one of the colleagues of C. VII., but generally on the emperor who ruled from 1025 to 1028. He was the colleague of Basil II., and devoted himself to a life of pleasure, giving very little heed to the affairs of state.

Constantine IX. (1042-54), old warrior of the E. Empire who owed his elevation to the purple to Zoe, the widow of Romanus III., whom he married. He neglected the defence of the empire, and spent huge sums in erecting magnificent buildings. During his reign the hold of the E. in Italy was practically lost, owing to the conquest of Lombardy by the Normans.

Constantine X. (1059-67), incompetent emperor who failed to justify the hopes that had been placed in him when he succeeded. During his period of rule the empire was fiercely attacked by the Turks under Alp Arslan and by many of the hill tribes. C. spent the greater part of his time in devotion to philosophic

trifles, and to the utter neglect of the empire. The last hold of the empire on Italy was lost in this reign by the capture of Bari.

Constantine XIII., Palaeologus, sometimes called **Constantine XI.** (1394-1453), last of the Gk. emperors; head to defend Constantinople against a besieging force of 300,000 under Mohammed II., and, though he defended it with great bravery, the city was carried by storm. C. was killed, and the E. Empire ended in 1453.

Constantine I. (1868-1923), king of the Hellenes, b. at Athens, eldest son of King George I. and of Olga, daughter of the Russian Grand Duke C. As duke of Sparta, he was trained in Ger. regiments, studying at Leipzig and at the Prussian Staff College. In 1889 he married Sophia Dorothea, sister of the Emperor William II. of Germany. For the disastrous result of the Gk. campaign in Thessaly, 1897, C. as generalissimo was held responsible; nevertheless he became commander-in-chief, and so remained till 1909; when the Military League compelled his retirement, and he went to Paris. Upon the rise of Venizelos, 1910, C. recalled, was made inspector-general and in 1912-13 he successfully commanded the forces in Macedonia. The assassination of his father, March 18, 1913, raised C. to the throne. He was successful against Turks and Bulgarians in Macedonia and Thrace; and before the year ended, his dominions were double those of his father in area. He remained neutral in the First World War, but with such benevolence toward the central powers that Venizelos resigned, March 1915, coming back, however, with a large part. majority. When, in May 1916, Fort Rupel, commanding Struma Pass, was surrendered to Bulgaria, the Allies began action which ended in June 1917 in C.'s expulsion. After three years in Switzerland, he was recalled by plebiscite, and returned, Dec. 1920. He prosecuted in Asia Minor a campaign that ended disastrously, Sept. 1922. A year later there was an insurrection in the army, and C. abdicated in favour of his son George, retiring to Palermo, where he d. suddenly of cerebral hemorrhage, Jan. 11, 1923.

Constantine (Konstantin Nikolaevitch) (1827-92), grand duke of Russia, was the second son of Tsar Nicholas I. He commanded the Russian fleet in the Baltic during the Crimean war (1854), and as a leader of the National party opposed the concessions granted to the allied forces of the Eng., Fr., Sardinians, and Turks. In 1862, when the Polish insurrection occurred, he was appointed viceroy of Poland; and in 1865 and 1878 was made president of the council of the empire, but was deprived of his offices in 1881 because of his supposed intrigues with the revolutionists.

Constantine, Pope (708-715), was elected to the papal chair in 708. He journeyed to Constantinople to confirm the decrees of the Quinisextine Council at the invitation of Justinian II.

Constantine the Great, *see* **CONSTANTINUS I.**

Constantine, cap. of the dept. of C. in the E. of Algeria. The tn. is picturesquely situated at an altitude of 2150 ft. above sea level, on an entirely isolated chalk rock, which is washed on three sides by a stream flowing through a deep ravine. C. consists of the European quarter and the old Arab quarter, which has preserved an intense local colour. The work of the native saddlers and shoemakers is famous, as also the woollen stuffs made here. It has railway communication with Bona, Philippeville, Algiers, Biskra, Tebessa, and Tunis. C.—in Rom. times called *Cirta*—was a city of the Massyli in Numidia, and the cap. of Syphax and of Massinissa and his successors. In the Jugurthine war Adherbal was besieged here by Jugurtha and slain in 112 B.C., and the tn. compelled to surrender. It was destroyed in A.D. 311, but was rebuilt by C. the Great in 312; was taken by the Arabs in 710, and by the Fr. in 1837. The pop. of the tn. is 121,200, of whom 45,000 are Europeans; of the dept. 2,727,700, of whom 70,000 are Europeans.

Constantinople, *see* **ISTANBUL.**

Constantinople, Councils of. Of the eight œcumenical councils convoked previous to the great schism, the first was held at Nicæa, and the second, fifth, sixth, and eighth were held at Constantinople. The first council of C. (A.D. 381), of 150 bishops under Pope Damasus and Emperor Theodosius I., confirmed the Nicene Creed and condemned Apollinarianism—a heresy directed against the divinity of Christ. The second council of C. (553), of 165 bishops under Pope Vigilius and Emperor Justinian I., condemned the Nestorian heresy. The fifteen anathematizations on Origen, sometimes ascribed to the fifth œcumenical, belong to a council held at Constantinople in 543. The third council of C. (680–81), under Pope Agatho and Emperor Constantine Pogonatus, defined a human and a divine will in Christ, thus terminating Monothelism. The fourth council of C. (869), of 102 bishops under Pope Adrian II. and Emperor Basil, is only recognised as œcumenical by the Church of Rome. It condemned Photius, who had seized the see of Constantinople, but the Photian schism was successful, and no other general œcumenical council was held at Constantinople. The chief work of the C. of C. was in matters of the theology of the Incarnation, but their decisions show a wide scope. *See also* **COUNCIL.**

Constantinus, Rom. serving as a common soldier in Britain at the time of Honorius (A.D. 395–423). His troops proclaimed him emperor instead of Honorius, A.D. 407 and crossing to Gaul they captured it almost entirely. Honorius acknowledged him as emperor in 408, to win his support against the Goths. C. then advanced into Italy itself, hoping to depose Honorius. The rebellion of his general, Gerontius, compelled him to return to Gaul, where Honorius's general and son-in-law Constantius defeated both at Arles. C. was executed by Honorius,

and the latter gave up Britain as part of his empire. *See* Jornandes, *De Rebus Geticis*; S. le Nain de Tillemont, *Histoire des empereurs*.

Constantinus I., Flavius Valerius Aurelius (Constantine the Great) (c. A.D. 288–337), b. in Moesia, son of Constantius Chlorus and Helena, first Christian emperor of Rome (c. 306–37). He served under Diocletian in the famous Egyptian expedition (296), and under Galerius in the Persian war, early becoming a favourite with the army as an able, brave, and good soldier, and an object of envy to Galerius. C. joined his father on the expedition against the Persians, and was proclaimed emperor in York by the legions on his father's death there. Galerius only granted him the title *Cæsar*, reserving Augustus for his own son, Severus. In 307 C. married Maximian's daughter Fausta, but in 309 he put his father-in-law to death for plotting against him. Galerius d. 311; 312, C. marched against Maxentius, an aspirant to the Rom. Empire, who was thrice defeated in Italy and finally drowned in the Tiber while trying to escape. According to legend, C. was converted about this time by the apparition of a cross in the sky with the legend *En toutis victa* (By this conquer). This story is told by Eusebius, who professes to have had it from the lips of C. himself, and also with much variation in details, by Lactantius and Nazarius. Being now supreme in the W., he promoted order and prosperity among his subjects, and encouraged Christianity. In 323 he defeated Licinius, another aspirant to the Rom. Empire, once near Adrianople, and again opposite Byzantium, becoming sole emperor of both E. and W. In 325 he assembled the first general council at Nicæa, at which Arianism was condemned and a famous Catholic creed adopted (Nicene). C. transferred his cap. from Rome by Byzantium about 328, naming the tn. after himself Constantinople. Is said to have had himself baptised in 337 as a Christian—having three years before proclaimed Christianity the State religion. There is, however, much discussion as to his Christianity or Paganism. *See* Eusebius, *De Vita Constantini* (trans. 1845); E. Gibbon, *The Decline and Fall of the Roman Empire*, 1776–88; J. B. Bury, *History of the Later Roman Empire*, 1889; J. B. Firth, *Constantine the Great*, 1905; C. B. Coleman, *Constantine and Christianity*, 1914.

Constantius I. (Chlorus, the pale), Flavius Valerius (A.D. 250–306), son of Eutropius, father of Constantine the Great who succeeded him. In 292 Diocletian and Maximian chose Galerius and C. to help them with the administration of the empire, each receiving the title *Cæsar*. Gaul, Spain, and Britain were assigned to C. He was forced to repudiate his wife, Helena, and marry Maximian's daughter, Theodora. On the abdication of Diocletian and Maximian in May 305 C. became emperor of the W., Galerius of the E. He was a brave soldier, and an able, humane, and just

ruler. He d. at Eboracum (York) during an expedition against the Picts in Britain.

Constantius II., Flavius Julius (A.D. 317-61), third son of Constantine the Great, who by will left his empire to his sons Constantine II., C. II., and Constans I. as Augusti, with his nephews Dalmatius and Hannibalianus as Caesar and Nobilissimus respectively. On their accession, 337, C. is said to have allowed the murder of Dalmatius and Hannibalianus. Thrace, Macedonia, Greece, the Asiatic provs., and Egypt were allotted to him. He had been Caesar under Constantine I. as early as 333. Throughout his reign he was at war with the Persians, and often defeated by them, notably in 348. When in 350 the revolt of Magnentius resulted in the death of Constans I., C. defeated the former at Mursa on R. Drave, 351, and in Gaul, 353, becoming master of the whole empire. Magnentius probably committed suicide after his defeat. In 355 C. II. made his cousin, the apostate Julian, Caesar and commander in Gaul. In 357 he visited Rome for the first time. He favoured the Arians, and banished the orthodox bishops. Julian's soldiers became devoted to him and proclaimed him emperor, forcing him to oppose C. The latter d. near Tarsus on his way to meet Julian, who became his successor.

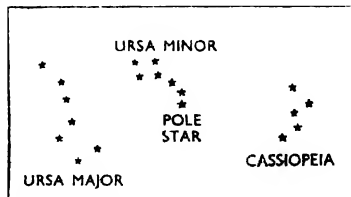
Constantius III., Rom. soldier, native of Illyria. He captured Constantinus the tyrant in A.D. 408, and held the rank of general by 411. He put down the rising of Attila, 416. C. married the daughter of Honorius, who made him partner of his empire, 421. For seven months C. was emperor of the W., but Theodosius II., emperor of the E., refused to acknowledge him. While preparing to make war on Theodosius C. d. at Ravenna. His son became Valentinian III.

Constanz, or Constance, Lake of, see **CONSTANCE.**

Constantza, see **CONSTANTA.**

Constellation, group of fixed stars conceived generally as representing some mythological figure. The stars may be regarded as forming the framework of these imaginary figures; thus in the well-known N. C., *Ursa Major* (The Great Bear), called also the Dipper, the Plough, or Charles's Wain, the rough parallelogram formed by four bright stars form the body of the imaginary bear, whilst the three other bright stars starting in a curve from the top of the parallelogram constitute the tail. The origin of the Cs. is lost in the mists of the past, but it would seem that the Chaldeans were the first to give names to groups of stars. From them this star-lore was passed on to the Gks., and mention is made of sev. Cs. by Homer and Hesiod. About 366 B.C. a Gk. astronomer, Eudoxus of Cnidus, described a list of Cs. which is substantially the same as that in use at the present day, and his work was versified by Aratus, who in his *Phenomena* mentions forty-five Cs. Ptolemy mentioned forty-eight star-figures: twenty-one N. of the ecliptic; the twelve signs of the Zodiac (q.v.); and fifteen S. of the ecliptic. Of course the ancients, not knowing of the

S. terrestrial hemisphere, were equally ignorant of the S. celestial hemisphere. The S. Cs. were gradually added during the sixteenth, seventeenth, and eighteenth centuries, the chief workers in this field being Petrus Theodori (d. 1596), Bartschius (1624), Jlevelius (1690), and Lacaille (1752). The total number of Cs. is now eight-fifty, and their boundaries have been definitely fixed. This very necessary work was done by a committee of the Brit. Association appointed in 1840, and presided over by Sir J. Herschel. See under specific names; **STARS**; **ZODIAC**; also **ASTRONOMY.**



THREE CONSTELLATIONS OF THE NORTH

Constipation, stoppage or incomplete action of the bowel. This condition is so common in modern times that many people habitually take measures to stimulate the bowel. The chief causes are the character of the modern food, its mode of preparation, and the sedentary nature of many occupations. Much of our food consists of soft starchy material, and improved methods of milling have eliminated the harder particles of grain which formerly served to stimulate the bowels. In addition, the absence of exercise results in a weakened and anemic state of the bowels in sedentary workers. In order to counteract what is practically a normal tendency to C., therefore, it is necessary to revert to some of the practices of our forefathers; to eat brown or wholemeal bread, oatmeal porridge and the like, and to take regular and fairly vigorous exercise. C. also occurs as a symptom of many diseases, particularly those which have a decidedly weakening effect on the system. When the processes of digestion have extracted the nourishing constituents of food, the residue is projected along the intestinal passage by a series of muscular movements, and is eventually compressed towards the base of the bowel ready to be ejected to the exterior. If therefore the muscles and nerves of the intestine lack tone and are enfeebled by an insufficient supply of healthy blood, the passage of the food residue becomes imperfect, and if the supply of fluid is also insufficient to promote movement, a stoppage occurs which tends to become worse on account of the compression and hardening of the unexpelled residue. The effects of C. become intensified as the condition continues. The retained substances act as irritants and poisons, and a condition of auto-intoxication results.

The toxic substances are carried by the blood-stream into all parts of the body; the patient is languid, complains of headache and general malaise, becomes depressed, and shows the effect of disordered health in the unwholesome colour of the skin, in his coated tongue and unpleasant breath. The treatment of C. aims first at discovering the cause; whether it be a diseased condition of the digestive organs, or general ill-health induced by improper food or general unhygienic conditions. In general, it may be said that attention to diet and hygiene is more useful than the employment of drugs. It should be recognised that starchy foods and tea are favourable to C., and a change should be made to green vegetables, fruit, and fruit products. Prunes and figs are particularly useful in causing renewed action of the bowel. Attention should be paid to digestion, all food should be masticated well, so that there may be no unmanageable lumps to defy digestion, and it is advisable to take very little liquid with meals. A good supply of fluid, however, is essential; but this is best effected by drinking a tumblerful of water night and morning, or even oftener if necessary. Regular exercise of a kind calculated to move the lower part of the trunk should be taken, and should be supplemented by massage practised by the patient himself at fixed times each day. It is important to recognise that the action of the bowel tends to recur at intervals dictated by the habits of the patient, and it is strongly advised that the utmost regularity in this respect should be observed, even when no immediate result is promised. Care and persistence often conquer the most obstinate C. without the aid of drugs. The objection to drugs is that though an immediate effect is obtained, the bowel is not strengthened, but may become even more debilitated after the abnormal stimulation. Where the patient shows no tendency to chronic C., such drugs as liquorice, aloes, rhubarb and magnesia, Epsom salts, and cascara sagrada are valuable. An enema of lukewarm water is usually effective, as also is glycerine administered as a suppository. It is above all things important to guard against the condition where the use of drugs results in their ultimate failure to produce any effect.

Constitución, tn. on the coast of Chile, situated at the mouth of the Maipo, and is 115 m. N.E. of Concepción, and a favourite seaside resort. Some ship-building is done there, and the chief exports are flour and grain. A dangerous bar exists in the roadstead caused by the riv. washing down large quantities of sand. A railway runs from this tn. to Talca. Pop. 7500.

Constituciones, see ELECTORATES.

Constitution, in politics, signifies a system of law estab. by the sovereign power of a state for its own guidance. Its main objects are to fix the limits and define the relations of the legislative, judicial, and executive powers of the state, both among themselves and with

reference to the citizens of the state, regarded as a governed body. In the countries of continental Europe, since the foundation of the U.S.A., or at least since the first Fr. Revolution, the idea of a C. has been generally that of a written public law, promulgated by the sovereign power. In Great Britain it is the whole body of the public law, constitutional as well as statutory, which has grown up in the process of time, and is continually being modified by the action of the general will as interpreted and expressed by the parliamentary representatives of the nation. A constitutional monarchy is one in which the sovereign is restricted in his powers by chambers of the nation's representatives; the granting of a C. accordingly means the transforming of a monarchy more or less absolute into a constitutional state. It has to be acknowledged that, in a general manner, the Cs. of modern Europe are political systems of establishing the government of a nation by the nation itself, or at least by its participation in the gov. As a rule these are based on the principle of national sovereignty. The first historical type of a C. as expressed in Magna Charta, is a direct emanation of the feudal system. Later, it was slowly amended, enlarged, and assured by successive agreements between the nation and its sovereign, and despite the rather strange fact that it has never been written, the Brit. C. stands in our days a great deal firmer and less vulnerable than all the European Cs. for which it has been a pattern. The Eng. C. rests on a pact; it is the normal and uninterrupted development of the principle of respect for the rights of corporations representing the nation. Other Cs., notably that of the third Fr. Republic, are based on the right of the whole body of the citizens to govern themselves, or, to express it in a precise formula, on the principle of national sovereignty. These two principles differ greatly. The necessity of a C. is accentuated not only in all federated republics (most of the existing republics are federated or quasi-federated), but also in all other federated states, such as was formerly the case with the federated monarchies of Germany. In those federated states the C. has, in some way, the character of a treaty concluded between the different states combined in one federation, and thus it is quite different from any ordinary law. The pattern of the C. of a federal republic is that of the U.S.A., adopted before the outbreak of the Fr. Revolution. The other Amer. republics are wavering between the Fr. system and that of the U.S.A., but favour strongly the former. But there have been some still more complicated constitutional systems, such, for example, as that of Austria-Hungary, a state based on a personal union, which was that of a dual monarchy composed of two different countries practically independent of one another, but ruled by the same monarch. There may also be a confederation of sev. monarchies, as was in bygone times the old Ger. confedera-

tion, broken up through the issue of the Austro-Prussian war of 1866. Absolute monarchies have no Cs., but are in certain ways ruled by traditions, such as the succession to the throne, to which every absolute ruler has to submit; should he attempt to alter the existing custom, his arbitrary dispositions would not be respected after his demise. These traditions, to which a Louis XIV. and the most powerful of the Russian autocrats had to submit, are for absolute monarchies exactly what the C. is in constitutional states. In the present century, until the advent of totalitarianism or the era of neo-dictatorships, all modern states enjoyed more or less liberal Cs., which, however, differed very much in character from one another, but might be generally classified as (i) constitutional monarchies; (ii) unitarian republic (France); and (iii) federal or quasi-federal republics (U.S.A., Germany, U.S.S.R., Switzerland, Australian Commonwealth, Brazil, Mexico, etc.—though, as is shown below, many apparent federal republics are really unitary states. Modern constitutional monarchies in Europe, before the Second World War, were Great Britain, Belgium, Holland, Denmark, Norway, Sweden, Italy, Spain, Rumania, and Bulgaria. Most of these remained unchanged after the war, but Italy rejected the king and elected to become a republic. Spain had ceased to be a monarchy since 1931. In Rumania the C. of 1866 (as modified in 1923), which proclaimed the state of Rumania as a constitutional monarchy, was restored by royal decree of Aug. 31, 1944; but the king was forced to abdicate in 1947 and a People's Republic was proclaimed. Before the First World War Germany, Austria-Hungary (the dual monarchy), Serbia, and Greece were also constitutional monarchies, as were also, conditionally, Russia and what remained of Turkey in Europe. In Greece a plebiscite estab. a republic from 1924 to 1935, in which latter year the monarchy was restored. The Ger. invasion of Greece in 1941 forced the king into exile and after the war he set up a regency pending a plebiscite on the issue of monarchy or republic, the people in 1946 choosing to retain the monarchy. France is the one avowedly unitarian republic in existence, but many other federal states are in effect unitary. In France the new C. of the Fr. Union was adopted after the war. It provides for three organs of government. At the head there is a president of the union, who presides over the Supreme Council of the union, composed of the members of the gov. and of representatives of the member states; the third organ of government, being an assembly of the Fr. Union consisting of representatives of metropolitan France and of the member states.

Developments since the First World War.—Through the world-wide upheaval of the First World War the structure of many national Cs. considerably changed. The three or four prin. causes effecting these changes may be briefly enumerated: Firstly, the further development of political

democracy, a growth that had been going on before the war, but which the war intensified. The fact that the U.S.A. came last but with great effect into the war, and was to so great an extent the arbiter of its conclusion, led to Amer. ideas of political democracy having a wide influence among European statesmen, when they came to overhaul their constitutional machinery in the months and years immediately following the war. The influence of the ideals of President Woodrow Wilson was immense in the two or three years of reconstruction immediately after the cessation of hostilities, and Amer. distrust of 'this king business' gave added impetus to the republican movement throughout Europe. The Ger. (Weimar) C. owed much to these ideals. Secondly, there was the impact of the feminist movement on Cs. Here again the war did not intensify a pro-war movement, but the aid that women rendered their countries in the time of emergency was sufficient at its close to ensure in most European countries that women's franchise should be estab. as part of the constitutional machinery. France was the sole great European country that had made no concession to this movement. Next should be noted the effect on modern Cs. of the economic repercussions of the war and the post-war depression. This received its strongest expression in the great Russian revolution of 1917. In all the countries of the combatants victors and vanquished alike, the question who should pay for the war was the paramount issue of politics, and the unrest that ensued on the attempted solutions of this problem strengthened the influence of Russia and fostered the growth of socialist parties throughout the world (a development which was much intensified after the Second World War). This, in its turn, brought about in countries like Hungary and Bavaria short-lived attempts to imitate the Russian revolution. The counter-revolutionary forces awakened by these premature attempts—forces like Fascism in Italy, the Magyar movement in Hungary (see HUNGARIAN REVOLUTION), the National Socialist and Heimwehr movements in Germany and Austria respectively—were in their nature anti-democratic and anti-feminist. Where these movements triumphed in Europe the general disposition was to abolish, or at least to suspend, the former Cs. The Fascists (see Fascism) in Italy, under the leadership of Mussolini (q.v.), entirely re-formed the It. C., the new corporate state there no more resembling the former C. of Italy than the C. of the U.S.S.R. resembles the former C. of Tsarist Russia. In Spain the directory of Primo de Rivera (q.v.) was content to suspend the C., which his successor undertook to restore, but after his death the country became republic, only to revert after the Civil war to a dictatorship. For Amer. C. see C. E. Stevens, *Sources of the Constitution of the United States*, 1894; C. K. Burdick, *The Law of the American Constitution*, 1922; H. C. Hockett, *A Constitutional History of the*

United States, 1939. For the C. of various countries, consult Dodd's *Modern Constitutions* (2 vols.), 1909, and *Select Constitutions of the World* (Irish Stationery Office, Dublin, 1922). See also *The Constitutions of all Countries* (H.M.S.O.), 1938; E. Jenks, *The Ship of State*, 1939; W. Friedmann, *The Crisis of the National State*, 1943; D. Lindsay, *The Modern Democratic State*, 1943; K. C. Wheare, *Federal Government*, 1946; E. C. S. Wade and G. G. Phillips, *Constitutional Law*, 1948.

Modern Federal and Quasi-Federal Constitutions.—Recent years have seen the emergence of a strong movement for the federal form of C. as offering some hope of avoiding the anarchy of extreme nationalism (*q.v.*). This movement seemed to reach its climax at the time of Clarence Streit's *Union Now* (1939), a well-reasoned plea for the association of some fifteen democratic national states in a world federation. But many of these states, such as Czechoslovakia and Austria, subsequently lost their sovereign status, and in any case this and other schemes inspired by W. ideas arbitrarily excluded partly or wholly non-European nations of great actual or potential strength such as Russia and China; while critics were not slow to point out that in the experience of hist. federal gov., while successful where conditions were favourable, was no better guarantee of peace than any other form of gov. For where there already existed strong common interests, common social and religious ideals and geographical contiguity, a closer constitutional association naturally followed as, for example, in the case of the sev. Amer. and Australian states. In these cases federation merely effectuated a common desire for such closer constitutional bonds as would confer such obvious benefits as a common defence and common economic interests, while leaving the constituent states as large a residuary measure of autonomy as was consistent with the special overriding powers of the federal or central gov. It has been well said that the chief weakness of federal idealism is that its advocates too often assumed that 'a constitutional and legal device which gives shape to a movement for closer interpretation, based on forces making for social and political cohesion, might itself institute such integration. Or they have too lightly assumed that one link, like that of the democratic C. in Streit's fifteen states, might make up for the lack of community in matters of geographical situation, defence needs, economic ties, etc.' (W. Friedmann, *The Crisis of the National State*). Yet if the enthusiasm for federal union waned with the advance of totalitarianism it is by no means dead. Its original impetus may be said to have sprung from the institution of the League of Nations with its covenant (*q.v.*) designed to check aggression through the machinery of consultation and sanctions and the complementary proposals for an organised international military force; but with the failure of the League

to check aggression federal idealism of the kind envisaged by Briand (*q.v.*) in his dream of a super-European state seemed to be altogether too visionary. With the defeat, however, of the totalitarian powers of the Axis (*q.v.*) in 1945 it may be that national Cs. will have to abate some element of their sovereign implications if the United Nations' (organisation) is to prove a practicable institution.

A modern federal C. sometimes, though not always, represents a stage in a development from a loose association to a unitary state. An example is offered by the development of the Ger. Confederation, through the federal Reich of 1870 to the more firmly knit federation of 1919 and eventually the unitary state of Nazi Germany. Indeed, it may also be said that the Canadian C., like that of S. Africa, is essentially unitary and that the only true federal Cs. existing to-day are those of the U.S.A., the commonwealth of Australia, and Switzerland. The Weimar C. of 1919-33 embodied the federal principle to some extent. There was a div. of subjects between general and state legislatures with the residuary powers passing to the states. Some subjects, like foreign affairs, defence, and customs, were assigned to the general legislature exclusively; others were given to general and regional legislatures concurrently, but with the proviso that general prevailed over regional legislation in case of conflict. There was, too, a supreme court to settle constitutional disputes between general and state legislatures. But there were modifications, particularly in regard to the financial relations of the general and state gov., which were inconsistent with the whole federal principle. Of the Weimar C. it is hard to say that it is quasi-federal like that of Canada, or not federal at all but highly decentralised like the S. African C. But if the C. of the Ger. republic of those years was quasi-federal it is clear that the practice of the general gov. was progressively unitary. The C. of the U.S.S.R. of 1936 seems to merit a similar description. It contains a div. of powers between the All Union gov. and the gov. of the constituent republics. But the power of amending the C. is vested in the general legislature, the supreme Soviet of the whole Union, both houses of which are elected by the people, though the upper house is organised to represent constituent republics and the lower according to population; and this modification is perhaps by itself conclusive in justifying us in classifying the C. as quasi-federal. Article 19 seems decisive on this point, for it declares that the powers of the All Union authorities include the 'confirmation of the unified state budget of the U.S.S.R., as well as of the taxes and revenues which go to form the All Union, the republic, and the local budgets.' This is evidently an assertion in law that, in respect of finance, the regional gov. are subordinate to the general gov. and not co-ordinate with it. Moreover Article 14 of the C. gives to the All Union legislature such comprehensive

powers over almost all spheres of life that it leaves little to the constituent socialist soviet republics, if the All Union sees fit to exercise them fully; while, again, the amendments made in 1941 by which the constituent republics were given powers in respect of military affairs and foreign relations made no substantial change in the legal position; for it was enacted that the Supreme Soviet of the Union had exclusive jurisdiction over the 'establishment of the directing principles of military formations in the union republics.' But in any case the C. of 1936 has so far had but little chance to operate under normal conditions. The demands of war have made the predominance of the All Union gov. inevitable (*see further under RUSSIA*).

The C. contemplated for India by the Government of India Act, 1935, was also quasi-federal. This Act provided for what is called a federation of India, composed of Indian states under their princes, and the provs. of Brit. India, the latter ruled by Indian ministers operating a system of responsible cabinet gov., not dissimilar to that of the Canadian provs. But, as in Canada, the federal principle was modified by unitary elements in the form of control by the general executive over the prov. executive and legislature, so also in the Indian C. the governor-general of India was vested with powers of intervention in the affairs of the prov. govts., which modified the application of the purely federal principle; but at the same time that principle was introduced into the Act of 1935 to such an extent that it may be said to be the distinguishing characteristic of the C. contemplated by that Act (*see K. C. Wheare, Federal Government, 1946*). Part II. of the Government of India Act, 1935, relating to federation, did not come into force on the attainment of Indian independence in 1947, and the Central Gov. carried on under the provisions relating to the transitional period. *See further under INDIA*.

Totalitarian Constitutions.—The distinguishing mark of the totalitarian Cs., and equally indeed in the Communist C. of the U.S.S.R., is the single-party dictatorial system of gov. based on the 'totality of the state' as opposed to the liberal conception of the state which restricts the authority of the state to certain spheres of life, while leaving as many others as possible to the free decision of the individual. The 'total state,' whether Fascist or Communist, extends the sphere of state influence over the whole life, private as well as public, and demands full submission of the individual to the requirements of the state. The National Socialist Germany of Hitler's day, and the Fascist Italy of Mussolini's, are the archetypes of totalitarian states. The Reichstag, elected in March 1933, virtually, though not *de jure*, set aside the Weimar C. by yielding absolute power to Hitler and his ministers. An Enabling Act of 1933 provided that the Cabinet might make laws by ordinance, including even such laws as were not in accord

with the Weimar C., which was not formally abrogated. In 1933 a decree was issued prolonging the life of the then existing Reichstag till 1947, but this body was in no sense a representative institution, nor had it any power of legislation or even debate. It met solely to effect the will of the chancellor Hitler, in whose personal dictatorship all the activities of the country, political, economic, industrial, etc., were *gleichgeschaltet* (totalitarianised). This, the working C. of Germany, provided for a leader and Reichskanzler, who was the supreme commander of the army and was also the leader in all political activities, both in the Reich and in the states. Under this quasi-C. freedom of speech and of thought and of the press was abolished, and equality before the law limited by the so-called Aryan paragraph, which arbitrarily granted full civic rights only to 'Aryans' (*q.v.*), while personal freedom of arrest, so familiar to Eng. political science from the passing of the Habeas Corpus Act, was curtailed by the activities of an officially recognised secret police. The constituent states of Nazi Germany were also deprived of their constitutional rights, for by the Unification Act of April 7, 1933, the federal states were all brought under the rule of Reichstatthalter, or governors directly responsible to Hitler; and by an Act of Feb. 1934 the sovereign rights formerly possessed by the federal states passed under the jurisdiction of the Minister of the Interior, and the Reich Cabinet arrogated to itself the promulgation of new constitutional laws for the federal states.

The Fascist C. introduced in Italy, which prevailed until Italy's military collapse in the Second World War, represented a radical transformation of the fundamental statute of the kingdom granted on March 4, 1848, by King Charles Albert to his Sardinian subjects. By that statute or charter the executive power of the state belongs exclusively to the sovereign and was exercised by him through responsible ministers; while the legislative authority was vested conjointly in king and Parliament, the latter being bi-cameral and consisting of a Senate and deputies. But under Mussolini's Fascist regime the Chamber of Deputies was replaced by a Chamber of Fasci and Corporations (*see also CORPORATIVE STATE*) composed of the 150 members of the National Council of the Fascist party and of the 500 effective members of the National Council of Corporations. The duties of the Chamber were performed by the full assembly, by the budget general commission, and by the legislative commissions. There was also a Grand Fascist Council, which was composed of the *quadriviri* of the march to Rome as life members and various ministers and other dignitaries appointed for as long as they held their respective offices. This Grand Council existed to co-ordinate all the activity of the regime resulting from the Fascist revolution and to give its opinion on three lines of conduct of the Fascist party. Its approval had to

be obtained on all questions of a constitutional nature, including those connected with the succession to the throne and the prerogatives of the Crown. By a decree of April 28, 1938, a new statute was promulgated by which the position of the Duce or leader was incorporated in the C. of Italy. The Chamber, with the Senate, co-operated with the gov. in framing legislation. The drafts of constitutional bills and the legislative commitments of a general character and certain other matters were debated and voted by the Chamber and the Senate in their respective assemblies; drafts of other bills were generally put under exclusive approval of the legislative commissions and submitted by the Duce for the king's sanction and promulgation. The executive power was exercised nominally by the king through the gov., but in fact by the Duce, who was only theoretically responsible to the king for the general political direction of the gov. The ministers were responsible both to the king and to the chief of the gov., i.e. to the Duce, for the actions of their respective offices. Thus, while It. Fascism served as a model to a number of similar movements in other countries, and in particular to Ger. National Socialism (q.v.), there was a somewhat higher degree of liberality in the Fascist C. of Italy than in that of Nazi Germany, where eventually Hitler placed himself above the law altogether and so made no pretence to rule constitutionally at all. For where in a Fascist or any other authoritarian state there is no real legislative body there is in effect no constitutional law; for, in the hist. of political science, absolutism has long given place to constitutional gov., and constitutional law has become supreme because only in virtue of its acceptance can the legislative body be constituted. See W. Stubbs, *Constitutional History of England*, 1878; A. V. Dicey, *The Law of the Constitution*, 1885, 1939; Sir W. R. Anson, *The Law and Custom of the Constitution*, 1886-92, 1922-35; Adams and Stephens, *Select Documents of English Constitutional History*, 1901; W. H. P. Clement, *The Law of the Canadian Constitution*, 1916; G. B. Adams, *A Constitutional History of England*, 1921, 1935; D. Kerr, *The Law of the Australian Constitution*, 1925; J. H. Morgan, *The Law and Constitution of the Empire*, 1928; G. Anschütz, *Die Verfassung des Deutschen Reiches*, 1921; G. V. Portus, *Studies in the Australian Constitution*, 1933; W. P. M. Kennedy and H. J. Schlosberg, *Law and Custom of the South African Constitution*, 1935; W. P. M. Kennedy, *The Constitution of Canada: an Introduction to its Development*, 1938; H. R. G. Greaves, *The British Constitution*, 1938, 2nd ed. 1948; S. G. Chrimes, *English Constitutional History*, 1948.

'Constitution of Athens,' one section of a lost work of Aristotle's on the constitutional hist. of 158 states. It was only known by quoted fragments until in 1891 a papyrus was found having a MS. copy of the C. of A., made about A.D. 100. Aristotle's authorship is not disputed and

the date is put between 328 and 325 B.C. The C. of A. is divided into two sections. The first gives the hist. of the constitution up to the expulsion of the Thirty Tyrants. The second describes the state offices in the writer's own day. The beginning of the MS. is missing and part of the second section is mutilated. The C. of A. has been ed. and trans. by F. G. Kenyon, 1891. See also J. E. Sandys, *Aristotle's Constitution of Athens*.

Constitutional Club, one of the leading Conservative political clubs. It is situated in Northumberland Avenue, London, W.C., and was estab. in 1833. It has 5000 members.

Constitutions and Canons, see APOSTOLIC.

Consubstantial (Gk. *ὁμοούσιος*, Lat. *consubstantialis*), of one and the same essence or substance. The word is applied in theology to the Three Persons in the Godhead. The general council of Nicea (A.D. 325) pronounced in favour of the Athanasian view that the Second Person of the Trinity is *ὁμοούσιος* with the Father. This view is still held by the Gk. and Rom. Catholic Churches, those of England and Scotland, and the leading continental Protestant churches.

Consubstantiation, identity or union of substance. In theology the doctrine of the real, substantial Presence of the Body and Blood of Christ, together with the bread and wine in the Eucharist. The term is opposed to the Catholic 'transubstantiation,' and means strictly the transition or union of two substances originally distinct into one common substance; substantial conjunction, or one substance out of two. The name is often erroneously applied to the Lutheran doctrine of the Real Presence. The doctrine should rightly be ascribed to John of Paris and Rupert, meaning substantial conjunction of the two, sometimes called Impanation.

Consuegra (Consaburum), tn. of central Spain in the prov. of, and 35 m. from, the city of Toledo. Has an ant. castle and rom. remains. It was partly destroyed by flood, Sept. 1891. Manufs. coarse cloth. Pop. over 8966.

Consuetudinary, or customary, law, as opposed to written or statute law, is that law which is derived from the customs of remote antiquity. Such is the common law of Scotland, and many of the principles of the Eng. common law (q.v.) are based upon immemorial usage, e.g. the custom of borough-Eng. (q.v.). See also CUSTOMS.

Consul (mercantile), public officer maintained by the state in foreign countries for the purpose of supervising the commercial business of the state. Early in the twelfth century the custom grew up among the merchant city states of Italy of sending such representatives to other lands, and especially to the E. The custom extended to France, but then almost died out, to be revived in the sixteenth century. Even then it did not spread very quickly, and not till the nineteenth century did it become universal. A C. is primarily concerned with

commercial and mercantile matters, and does not rank as a diplomatic agent. He cannot therefore enter on his duties without the sanction of the gov. of the country to which he is sent. His first duty is to exhibit his commission to these authorities, and to receive their permission to enter on his duties. This permission is given in an *exequatur*, which may be revoked at any time. Cs. are divided into consular agents, Cs. general, Cs., and vice-Cs., and are immune from taxation unless they are themselves directly engaged in trade. The consulate is considered as a part of the Brit. Empire, and so all acts officially performed by the C. are valid in our courts of law. He can perform all the acts of a notary general. It is his duty to protect the rights of his countrymen in that part; to protect them from aggression, and to secure the redress of grievances sustained by them. If he is unable to perform these duties he must report the matter to the Brit. ambas. at the cap. In addition he has to send home annually a report to the secretary of state for foreign affairs containing the returns of the trade for the different ports within his consulate, and other matters of a similar nature. Of late years it has also been his duty to send home a report of anything of importance to trade which may occur at any time, and these reports, pub. by the Board of Trade, provide valuable information to those interested in foreign trade. He holds, also, a general supervision duty over Brit. ships and sailors. He inquires into offences committed on the high seas, and sends home any shipwrecked or distressed sailors that may be cast on the coasts.

Consul, title of the two highest ordinary magistrates in the Rom. state. After the expulsion of the kings in 510 B.C. this office was instituted, and the first to hold it were Lucius Junius Brutus and Lucius Tarquinius Collatinus. Probably the title was at first that of praetor. The Cs. were elected by the *Comitia Centuriata*, and until 367 B.C. only patricians were eligible. The inauguration of fresh Cs. was accompanied with elaborate ceremonies, including a procession to the Capitol and a great sacrifice to Jupiter. The power of the Cs. was very great, but it must be remembered that all their power was held in common. They gave their name to the year, and assumed a semi-regal state. Their insignia were the *toga praetexta*, the *sella curulis*, and the twelve lictors, each carrying a bundle of rods (*fusces*) with an axe in the centre. To the Cs. belonged the supreme command of the army, the regulation of war and peace, the judicial headship, the disposal of the treasury, and the assembling of the Senate. They could only be challenged when they again became private men at the end of their term of office. In cases of great danger, complete authority was given to a dictator, or else absolute power was temporarily voted to the Cs. by the Senate. The consular power was gradually restricted. In 494 B.C., when the office was still confined to the patricians, the *tribuni plebis* were appointed, with

right of appeal to them from the Cs. Then in 367 B.C., by the famous *Lex Licinia*, it was enacted that one C. must be a plebeian. Previous to this the appointment of censors, in 443, had removed the business from their hands, and in the same year (367) the appointment of praetors freed them from many of their judicial functions. During the civil wars the consular office lost its original character, and it survived as the mere shadow of its old self in the W. until A.D. 534 and in the E. till 541.



A CONSUL OF THE SIXTH CENTURY

Consulate of the Sea (*Consolato del Mare*), famous code of maritime law, supposed to be a compilation of the laws and trading customs of various It. cities (Venice, Pisa, Amalfi, Genoa) and the cities with which they traded (Marseilles, Barcelona, and others). The exact original date is not known, but the laws are thought to have been collected during the eleventh, twelfth, and thirteenth centuries. The earliest known ed. was pub. at Barcelona, 1494. This was trans. into Eng. by Sir Travers Twiss, 'The Customs of the Sea,' forming an appendix to *The Black Book of the Admiralty*, 1874.

Consumption, in economics, is opposed to production, with which it is closely related, for they may be respectively regarded as destroying and producing utilities. Thus the common div. of C. falls into productive, that which satisfies a want which will lead to further efficiency of the consumer, and unproductive, that is, of luxuries. The div. of the constituent members of a community into

consumers and producers, for purposes of discussing economic questions, is confusing, if not misleading; for all, in a modern state, with very limited exceptions, are both. State regulation of C. has, in the past, taken the form of sumptuary laws, regulating the kind of goods, especially luxuries, such as clothes, etc., which classes of the community are allowed to adopt and use. To-day, in the post-world war period of shortages, it takes the form of a purchase tax, the main object of which is to limit the production and C. of 'luxury' as opposed to 'utility' goods.

Consumption, see **PHTHISIS**.

Contagion (Lat. *contingere*, to touch) strictly the communication or transmission of disease from a sick to a healthy individual, caused by direct contact or by a third person who carries the contagion (poisonous principle) but escapes himself (mediate contact), or by touching articles bearing the germs of the disease. Contagious diseases are distinguished from infectious by reason that the latter can be transmitted by far more indirect contact, through the medium of excretions or exhalations of the suffering body, by spreading through the air or in water. Among contagious diseases are measles, small-pox, erysipelas, diphtheria, tuberculosis, rabies, venereal diseases. Scarlet fever is infectious, but probably not strictly contagious. See also **BACTERIA** and **INFECTION**.

Contagious Diseases (Animals) Acts. Under these Acts considerable powers have been vested in the Ministry of Agriculture and Fisheries and upon local authorities for the administration of their provisions. The animals dealt with by the Acts are bulls, cows, oxen, heifers, and calves, sheep and goats, and all other ruminating animals, and swine; but the Ministry may by order extend the Acts to any four-footed beasts; and orders have long been issued relating to horses, asses, mules, and dogs, e.g. the Rabies Order of 1897 for muzzling dogs. The diseases to which the orders of the Ministry pay particular attention include cattle plague or rinderpest, contagious pleuropneumonia of cattle, foot-and-mouth disease, sheep scab, sheep-pox, and swine fever; but the Ministry may include others, and orders have been issued including rabies, anthrax, glanders, and farcy.

Contango, see under **STOCK EXCHANGE**.

Contarini, name of one of the twelve families who elected the first doge of Venice, A.D. 697. This noble Venetian family was one of great importance, among its noted members being sev. doges (from Domenico, 1043-71, who rebuilt St. Mark's, to Alvise, 1676-84), men of letters, painters, statesmen, and soldiers (seven C. fought at Lepanto):

Andrea Contarini, doge from 1367 to 1382; ended the war between Venice and Genoa by reconquering Chioggia.

Ambrogio Contarini, Venetian ambas. to Persia (1473-77), pub. an account of his travels, 1487.

Gasparo Contarini (1483-1542), bishop of Bologna and diplomatist, was made

a cardinal by Pope Paul III., 1535. He was Venetian ambas. to the Diet of Worms, 1521, accompanying Charles V. on his travels, and concluding the emperor's alliance with Venice, 1523. As papal legate at the Diet of Ratisbon, 1541, he tried to effect a reconciliation between Protestants and Catholics. He pub. *Consilium de Emendenda Ecclesia* (1537); *De Magistratibus et Republica Venetorum* (1543).

Giorgio Contarini (1549-1605), was a Venetian painter of portraits and historical pictures. Among his works are 'The Doge Marino Grimani adoring the Virgin'; 'Conquest of Verona by the Venetians'; and 'Baptism of Christ.' See J. Fontana, 'Sulla patrizia famiglia Contarini' in *Il Gondoliere*, 1843.

Conte, literally a 'story,' from Fr. *conte*, to narrate. Though not yet Anglicised this word is often used in Eng. literary criticisms. C. is strictly a generic term, covering both long and short stories, but is more generally used for a short tale dealing entirely with one set of ideas. The word occurs in France as early as the thirteenth century to mean an anecdote artistically told. It is especially applied to tales of wonderful adventure and to fairy-tales. Various collections made these Cs. popular in the Middle Ages, such as the *Gesta Romanorum* and *Historie Latine*. It is also the title of one of the divs. of the works of La Fontaine, whose tales are identical in general character with those which diverted Europe from the days of the *fabliau* writers, through the period of the It. *novellieri* to that of the second great group of Fr. story-tellers ranging from Antoine de la Salle to Béroalde de Verville. Like the *Contes Drôlatiques* of Balzac their subjects are light love, the cunning of wives, the deception of husbands, and the breach of vows by ecclesiastics. In his *Contes Drôlatiques* Balzac, in the fresh and wonderful language of the Merry Vicar of Meudon, has given us a marvellous picture of Fr. life and manners in the sixteenth century. The gallant knights and merry dunces of that eventful period of Fr. hist. stand out in bold relief upon his canvas. Written in the nineteenth century in imitation of the style of the sixteenth, his work is a triumph of literary archaeology and a model of that which it professes to imitate -- a faithful picture of the last days of the *moyen âge*, when kings and princesses, brave gentlemen and haughty ladies, laughed openly at stories and jokes which are considered disgraceful by their more fastidious descendants.

Contemporaneity, term, used in geology to signify the similarity of conditions under which strata have been deposited. Thus, in widely sundered regions of the earth's surface a similar succession of geological layers has been observed. This does not mean that similar layers were laid down at the same time, but that they occur in an order of succession which is fairly general. The term C. is therefore not applicable in its literal significance, and Huxley proposed to substitute the term *homotaxis*, expressing similarity of suc-

cession. The evidence for homotaxis is obtained from the study of fossils, which gives more reliable indications than an examination of the rocks themselves. Although homotaxial rocks are not necessarily literally contemporaneous, they are probably not far sundered as regards chronology.

'Contemporary Review.' This monthly pub. was founded in 1866. In 1870 J. Knowles became ed., gaining as contributors, among others, Gladstone, Tennyson, Manning, Huxley, Ruskin, Froude, Bagehot, and Morley. The *Review* deals with political, theological, literary, and social questions. In 1913 it incorporated the *International Review*.

Contempt of Court, term of wide import. Blackstone shortly defines it as consisting in a disobedience to the rules, orders, or process of a court, or against the king's prerogative. In this definition, however, the primary and secondary meanings are liable to be confounded. To disobey the order of a court is to flout the prerogative of the Crown as the fountain of justice (*see* CROWN). Hence it is that so many and diverse acts may constitute C. of C., e.g. refusing without justification to answer questions properly put by counsel, abusing the judge, assaulting an officer of the court, insulting a litigant or his counsel whether in court or in a master's office, sending libellous or scandalous letters, or offering bribes to a judge or any other officer of the court, tampering with a receiver appointed by the court to administer property, to publishing reports of cases *sub judice* (i.e. undecided), or where the hearing was *in camera*, and disregarding injunctions, decrees, orders, judgments, and so forth, where at all events it is in the power of the person so disregarding to carry out the order. C. of C. has always been regarded as a quasi-criminal matter. Hence the court has power to commit the offender to prison or impose a fine. Different courts have different degrees of power to commit. The king's bench (*q.v.*) has the widest power. It can attach for contempts offered to inferior courts. But every superior court of record, e.g. any div. of the high court and the assize courts, has power to commit for every kind of contempt committed against its own authority. Other and inferior courts, like co. and quarter sessions courts, are restricted to punishing contempts committed, as it is said, *in facie curiæ*, i.e. in open court. Punishment is not often severe for C. of C. In many cases, especially where the contempt is one of the court itself, an apology and payment of costs incurred by the contempt will be deemed sufficient extenuation, provided the offender makes reparation by doing that the omission of which constituted the C. of C.

'Contemptible Little Army.' During Sept. 1914 a Brit. Expeditionary Force Routine Order was issued in which was pub. a copy of an order, reputed to have been issued by the Ger. emperor, referring to the Brit. Army as 'Gen. French's contemptible little army.' This descrip-

tion was naturally seized upon by all who were directly interested in securing recruits and it proved to be a most effective piece of propaganda. No 'title' among veterans is more honoured than that of an 'Old Contemptible,' and an association of ex-soldiers now bears that name. During the war no steps seem to have been taken to verify the authenticity of the ex-Kaiser's statement, but in 1925 some Brit. and Ger. generals made exhaustive searches in official archives and newspaper files in an endeavour to establish the true source. All efforts, however, proved fruitless, and as a last resort the matter was referred to the ex-Kaiser at Doorn, who denied ever having used such an expression with reference to an army, the high value of which he had always appreciated. At the time, however, counter-propaganda was pub. to the effect that the expression 'verächtliches kleines Heer' alluded solely to the small numbers of the Brit. Army in 1914.

Content: 1. Term used in logic indicating the aggregation of attributes which constitute the meaning and are expressed in the definition of a given concept. 2. Paper signed by a ship's captain stating the ship's destination, stores shipped, etc. It has to be given to the customs house officer before the ship can clear upwards.

Conti, House of, cadet branch of the house of Bourbon-Condé. Éléonore de Roye married (1551) Louis de Bourbon, the first prince of Condé, uncle of Henry IV., and brought him C. The title was renewed in favour of Armand de Bourbon (1629-66), second son of Henry II., prince of Condé, younger brother of the great Condé. His son, François Louis de Bourbon (1664-1709), a gallant soldier, was elected king of Poland after Sobieski d. (1697), but did not ascend the throne. The elder brother of François, Louis Armand (1661-85), fought in Hungary with Turenne and Prince Eugène. François Louis left an only son (1717-76), who was the last of the line. He d. in exile before the Restoration.

Conti, Nicolo de, It. traveller of the fifteenth century. He acquired a knowledge of Arabic in Syria, and then started on his travels, first going to Babylonia and Bassora, then to the Malabar coast, Ceylon, Sumatra, Java, and S. China. For an account of his travels, *see India in the Fifteenth Century*, 1857, which contains an Eng. trans. made by J. W. Jones for the Hakluyt Society; and also Ramusio's *Navigazioni e Viaggi* (pub. 1550, 1556, 1559).

Continent (Lat. *continere*, to hold together), a word in physical geography, originally applied to a large tract of land which holds together or contains. The word is now used in contrast to the great oceans, and does not, strictly speaking, include is. and semi-submerged tracks. Geographers recognise six Cs. in the world. These are Europe, Asia, Africa, N. America, S. America, and Australia. It is a curious fact that, with the exception of Europe and Asia, the Cs. are triangular and wedge-shaped, tapering from the N.

in a south-south-easterly direction whereas the great oceans are polygonal in shape. Chamberlin and Salisbury offer this explanation in their *Geology*, 1906: 'The true conception is perhaps that the ocean basins and continental platforms are but the surface forms of great segments of the lithosphere, all of which crowd towards the centre, the stronger and heavier—the ocean basins—taking precedence and squeezing the weaker and lighter ones—the continents—between them.' Each C. stands on a submerged platform called the continental shelf. This shelf is in the form of a terrace and apparently has been formed by the continuous beating of the waves. It is of variable width, the surface of the land sloping gently to soundings of 100 fathoms (600 ft.), until there is a sudden drop, called the continental slope, to 1000 fathoms. The continental area rising above the sea level is estimated at $\frac{1}{5}$ of the earth's surface, and the continental slope is estimated at nearly half the remainder of the earth's surface. It is difficult to determine the exact elevation of a C. above the mean sea level on account of the distortion of the sea surface. Around the Chilean Andes it has been calculated that the sea is heaped up 2000 ft., whereas in other parts only a few hundred feet can be accounted for. It is now thought by geologists that the continental area has always formed permanent features of the earth's surface. The foundation structure of the Cs. is similar, and the continental rocks, granite, etc., are different from those of oceanic is., so that an is., which, by the action of the sea, has been removed from its C., may be recognised by its rocks and soils. The rocks and soils are due to movements in the past which took place periodically, but after long spaces of time. Each C. has a high mt. range, which forms a backbone to it, and from which rivers fall and drain the plains on either side. See GEOGRAPHY; ISLAND; SEA; DESERTS; and names of the separate Cs.

Continental Congress. The C. C. of the U.S.A. was inspired by the advice and activities of the celebrated Samuel Adams in the initial stages of the resistance of the colonies to Grenville's Stamp Act of 1765. The historical importance of the meetings of the C. C. of America lies in the fact that their proceedings made manifest to the world the solidarity of the different states or provs. in their attitude towards England. The first C. C., which met at Philadelphia in 1774, was formed of delegates from all the colonies except Georgia. It was intended to be a federal body composed of states' representatives, which should meet annually and whose functions were primarily to concert the best means for forcing 'the British Parliament to come to proper terms.' It had no executive powers, and indeed, like all unconstitutional or provisional assemblies (*cf.* CONVENTION), it had no certain *locus standi* or functions whatever. Its first act was to address a petition to George III. promising loyalty

in consideration of the redress of the grievances, and in the Declaration of Right it set forth in characteristically democratic terms the collective opinion of the colonists in regard to their rights and liberties. No adequate response was met with from the Brit. Ministry, and the second Congress, which met in 1775, proceeded with greater vigour, and gave reality to the *united* or *confederated* resolutions of the delegates by raising a continental army and appointing Washington as the commander-in-chief. The third Congress met at Philadelphia in May 1776, and by passing the celebrated Declaration of Independence on July 4 severed the last tie of allegiance with Great Britain. Its position being by now more certain, it passed laws for the colonies, and assumed all the executive functions of a provisional gov. The C. C. continued to act as the federal legislative body until 1783, when the Articles of Confederation and Perpetual Union between the States having been ratified by most of the states, provided, though in a vague manner, for a div. of powers between the sev. states and a congress of delegates from the states. See *Cambridge Modern History*, vol. vii, *passim*.

Continental System, method adopted by both France and England, and provoked by the Berlin Decree of 1806, is usually given this name by the Berlin Decree. Great Britain was declared to be in a state of blockade, and all commerce or intercourse with her was forbidden to France and to her allies. This decree, naturally, only declared a paper blockade, since the naval position of France and her allies forbade the adoption of any more stringent method. The Order in Council of 1807, issued by the Brit., naturally attempted to make reprisals. No vessel belonging to any neutral nation was to enter, or have commercial dealings with, any Fr. port or any port belonging to the allies of the Fr. In 1807 Napoleon issued the Milan Decree, which stated that any ship of any nation which had been searched by, or had paid duty to the Brit., lost thereby its nationality and could be seized by the Fr. or the allies of the Fr. The Russian war of 1812 was a direct outcome of the refusal of the Russians to comply with the decrees of Napoleon any longer. Napoleon himself found that he was continually forced to give permission for the breaking of his own decrees, since, without Brit. goods, he himself could not get on. The scheme finally broke down, however, owing to the supremacy of Britain at sea, and her control of the markets of the world. The Eng. system, however, was an essential cause of the Amer. war of 1812.

Contingent Liability. In contra-distinction to a debt or liquidated demand, a C. L. is one that only arises at the happening of a certain event, *e.g.* a covenant (*q.r.*) by a debtor to assign after-acquired chattels to secure a debt creates a liability on the debtor to assign the chattels as soon as he acquires them. Any C. L. to which a debtor is subject at the date of a receiving order against him or to

which he may become subject before his discharge, is a provable debt, e.g. a surety has a right of proof in respect of his C. L. as surety for the debtor.

Contingent Remainder, in law, a term used for an estate in remainder upon a prior estate, limited to take effect, either to an uncertain or unascertained person or upon an uncertain event. If land is granted to A for life, and to B and his heirs at A's death, B's interest is called the remainder. A remainder given to an unborn or unascertained person, or upon some further contingency (when C shall return from abroad) is a 'contingent' as opposed to a 'vested' remainder (given to an ascertained person, and ready to go into effect upon determination of the precedent estate). Though such a remainder is an estate in expectancy (future), it is considered a present interest, and may be transferred to another party by modern legislation. See *Contingent Remainders Acts, 1845 and 1877*.

Continuation Schools are to be found, governed by diverse conditions, in Great Britain, Canada, Australia, America, Central Europe and Italy. At first organised in England as a system of not secondary but continued elementary education for voluntary students, they were made compulsory on all wage-earners from fourteen to eighteen, unless they had remained at school until sixteen, by the Fisher Education Act of 1918. This measure was an attempt to help to solve part of the problem of the half-tutored child entering the arena of the world, and instruction was to be not only educational, but also social, moral, and physical. Young employees were to devote a minimum of 320 hrs. in each year to their classes. The system is perpetuated in the Education Act passed on Aug. 3, 1944 (the Bill presented to Parliament by Mr. R. A. Butler); for a special feature of the Act is the institution of C. S., at first named in the Bill 'Young People's Colleges,' but afterwards changed to 'County Colleges,' where education will be continued up to the age of eighteen. In America the majority of C. S. came into existence after 1919, and wage-earners between fourteen and seventeen or eighteen who have not taken a high school course must put in an attendance at a continuation school for four to eight hours per week. In New York every employer must notify the proper school authority before engaging or dismissing an employee of school age, while the unemployed adolescent worker must report daily until fresh work is found and vouched for by the new employer. See Sir M. E. Sadler, *Continuation Schools in England and Elsewhere*, 1908; Edith A. Waterfall, *The Day Continuation School in England*, 1923; E. W. Knight, *Education in the United States*, 1929; R. W. Ferguson and A. Abbott, *Day Continuation Schools*, 1935; P. L. Kitchin, *From Learning to Earning: Birth and Growth of a Young People's College*, 1944.

Continuity, principle by which it is assumed that appreciable changes in progressive phenomena correspond to

inappreciable changes taking place in inappreciable intervals. In psychology the principle involves the idea of a stream of consciousness; that no state of consciousness is fixed, but is arriving out of a previous state and already developing into a subsequent state. In graphical mathematics, a function is said to be continuous at a point if it is defined in an interval containing that point and has a limit at the point which is equal to the function of the point. The function is said to be continuous throughout an interval when it is continuous at every point of the interval. In hydrodynamics the principle of C. assumes that a fluid is absolutely homogeneous and devoid of viscosity; this leads to relationships which are only approximately true in the more practical science of hydraulics.

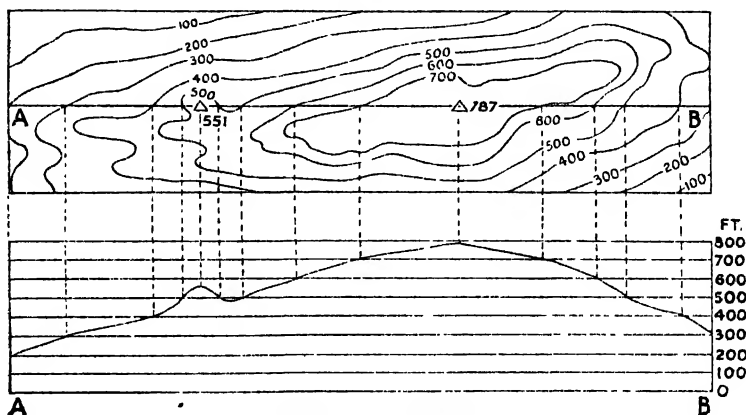
Contorted Strata. When geological folds are gentle, they are said to be undulations; when the strata are highly folded and twisted, they are said to be contorted. It is in mt. regions such as the Highlands, the Alps, the Andes, and the Himalayas that these folds are so close. Changes have as a rule taken part with regard to their structure, and their contained fossils have been badly crushed. Some mighty force has been at work, and it must have been parallel to the earth's surface. The cause of this force is unknown, but it may be that it was caused by the slowly cooling and therefore decreasing interior of the earth having caused the surface to wrinkle and contract.

Contour, term used in physical geography, and means an outline. C. lines are lines drawn on maps at fixed intervals, and indicate the form of the surface of the ground, each line passing through points at the same altitude above sea level. These lines are drawn near to each other if the slope of earth is a steep one, and are further apart where the slope is less acute. The term C. is also used for other lines drawn on the same principle, such as those in which the figures employed are the same for all points on the same line, as for instance in isotherms, isobars, isoclines, etc. (See illustration, p. 202.)

Contraband (Fr. *contrebande*, from Lat. *contra*, against, and Low Lat. *bannum*, a proclamation), term applied to illegal traffic in general, and hence to goods smuggled into a country. More generally the term is reserved for contraband of war, the name applied to certain commodities, which, during time of war, it is forbidden for neutral nations to supply to either of the belligerents. C. of war includes, without any doubt, all directly military implements, such as guns, ammunition, tents, and military stores of all kinds. But unless there are special treaties between nations, which give an accurate definition of the term, much doubt is apt to arise as to the further use of the term. It is clear that articles which could only be used for peace purposes must be excluded, but there are a great number of things which, while normally so used, might give one army a distinct

advantage over the other. In 1904, during the Russo-Jap. war, Russia contended that coal, flour, grain, rails, and wood and iron beams were all C. if directed to a belligerent, whether they were to be used for warlike purposes or not. Russia further claimed the right to seize any coal ship cruising in waters near the scene of war, whether it was destined to one of the belligerents or not. Great Britain and America protested against almost all of these claims, and secured from Russia the admission that food-stuffs were only conditional, and not absolute, C.; that is to say that the destination in this case is more important than the nature of the goods. During the Napoleonic wars the Brit. Gov. insisted

to order, or if the ship's papers did not indicate the consignee of the goods, or if the goods were consigned to persons in enemy ter. or in ter. occupied by the enemy. Similar tests were applied to absolute contraband by an Order in Council of March 30, 1916. These, and other modifications adopted by the allied powers, altered the Declaration of London beyond all recognition, and it was eventually abandoned in July 1916 by another Order in Council which declared that the principle of continuous voyage or ultimate destination should be applicable in both contraband and blockade. The justification for this departure lay in the fact that the relief of the civil pop. by such goods as foodstuffs might cause



CONTOUR AND SECTION

on the right of either belligerent to stop and examine neutral ships which were suspected of carrying C. goods. Unless it acts in contravention of the generally received customs of nations, the Admiralty court (sitting as a prize court) of each belligerent has the right of deciding what is C. of war and what is not. Various agreements exist between the U.S.A. and European countries as to the various articles to be included, and the variations between these can only be seen by reference to the actual terms of the treaties. So far as ordinary trade is concerned neutral powers may carry this on with either belligerent, except in cases of blockade. The Second Hague Conference came to no decision on the subject of C., but the matter was extensively dealt with in the conference of London (1908-9).

On the outbreak of the First World War Great Britain adopted the Declaration of London (q.v.) with certain modifications which were again varied in Oct. 1914. Under these modifications conditional contraband was made liable to capture on board vessels, even though bound for neutral ports, if the goods were consigned

an increase to the military or naval forces of some other foodstuffs which the civil pop. would normally have consumed. This view, which regards modern warfare as effecting the whole of the pop. of a combatant, was held by eminent Amor. jurists early in 1914. During the First World War the distinction between absolute and conditional C. was shaken to its foundations, despite the fact that in theory the distinction was correct. But like other theories in international law it dates from a time when armies were small and comprised only a negligible fraction of the total pop. of a country. In the First World War, however, 'when every fit male in each belligerent state became a member of the military forces, when the whole country with all its resources was gradually mobilised, and the means of communication were nationalised and developed to an unforeseen degree, it was widely contended that the distinction between absolute and conditional C. was out of date, seeing that a belligerent gov. could at any moment, and would if necessary, lay its hand on and requisition all articles in the country

which were, or might be, of use for carrying on the war, (Oppenheim.)

At the beginning of 1939 conditional C. was declared generally to comprise all kinds of foodstuffs, feed, forage, and clothing, and articles and materials used in their production (but the foreign ministers of the Amer. republics at Panama on Oct. 3, 1939, registered opposition to the placing on lists of C. of foodstuffs and clothing intended for civilian pops. and not destined directly or indirectly for the use of a belligerent country or its armed forces). There are two groups of articles which must always be recognised as free. Those which serve exclusively to aid the sick and wounded may never be treated as C., even if their destination is hostile. They may, however, in case of urgent military necessity, and subject to the payment of compensation, be requisitioned if they are destined to tor. belonging to or occupied by the enemy, or to his armed forces. The unratified Declaration of London laid down this rule and it was adopted in the First World War. Similarly, articles intended for the use of the vessel in which they are found or for the use of her crew and passengers during the voyage are free.

Contraband Control in the Second World War.—As soon as war between the Allies and Germany broke out C. control bases were estab. by the Brit. Gov. at Kirkwall, Weymouth, The Downs (N. Foreland), Gibraltar, and Haifa. The Ger. Gov., by way of countering the effective Brit. blockade, announced that, since the Brit. C. list included goods that were not war materials, Germany would also include such goods. With regard to conditional C., Germany would follow Britain's example and take into consideration the possible destination of goods beyond the neutral port to which they were consigned. By mid Oct. 1939 the Brit. C. control had intercepted and detained nearly 350,000 tons, but the detection of C. was then becoming more difficult because the consignments were no longer openly sent to Germany, but to neutral agents. With the object of expediting the passage of neutral cargoes the Brit. Gov. decided to reintroduce the system of navicerts, as in the First World War. Under this system the navicert ensured the consignment for which it was granted an undisturbed passage to its destination. In effect, the navicert was a commercial passport for goods, which was issued by Brit. Gov. representatives before they left the neutral port of shipment. Naval officers and customs officials were instructed that, subject to any delay caused by other cargo carried, such consignments as were covered by navicerts or letters of assurance should suffer as little detention as possible, unless reasons for suspicion as to their ultimate destination should arise after the goods had been shipped. By the end of Nov. 1939 the allied C. control had detained approximately 735,000 tons of goods destined for the enemy, of which 476,000 tons had been captured by Britain and

260,000 by France. In the subsequent years of the war Ger. oversea trade was virtually swept from the seas. See J. B. Moore, *A Digest of International Law*, 1906; F. E. Bray, *British Rights at Sea under the Declaration of London*, 1911; Earl Birkenhead, *International Law*, 6th ed., 1927; L. Oppenheim, *International Law*, 1928; D. T. Jack, *Studies in Economic Warfare*, 1940.

Contraception, see BIRTH CONTROL.

Contract Bridge, a development of auction bridge which originated in the U.S.A., and was introduced into England about 1912. International rules were not made until 1933. There are sev. expert systems, but those most in favour are the Culbertson or approach forcing system and the Lenz or official system. The chief differences between contract and auction bridge are in the bidding and scoring. Tricks scored in excess of the number contracted for do not count towards game—100. A bonus of 50 for an overtrick beyond the contract is scored above the line, balanced by a loss of 50 for each undertrick. After having won a game, the winning side is vulnerable for the rest of the rubber. Vulnerability means that its points, both for winning and losing, are greater than those of its opponents. Points are given to players for fulfilling their contract, while those who fail to do so lose points. Under the code of 1935 dummy is now named dealer's partner. Undertrick penalties have been reduced and graduated penalties abolished; while the grand-slam bonus has been reduced to 1000 not vulnerable and 1500 vulnerable.

New International laws of C. B. were agreed upon in 1948 and came into force on Nov. 1. The revision of the laws was overdue, for they were difficult to interpret. A revised code was under consideration in 1939 but postponed by the outbreak of war, though America pub. new laws in 1943 and some of these have been incorporated in the new code. The general view of the law-makers appears to be that a number of the accustomed penalties were too severe. These are lessened in the case of exposing a card during the auction, attempting to change a call, making an insufficient bid, naming the wrong bid in doubling or redoubling, leading out of turn, and correcting a revoke. The laws have also been changed notably on the right to enforce a penalty, the penalty for a call out of turn, and the rights of dummy. The rights of dummy are greatly extended: he can question any player about a revoke, draw attention to an irregularity, or try to prevent one about to be committed; but he forfeits his rights if he has seen a card in another player's hand. The most severe penalty is that if having seen a card in another hand dummy questions the declarer about a revoke and the revoke card is withdrawn either defender may require the declarer to play his highest or lowest correct card. The revoke clauses in the 1935 laws led to more arguments than any others. Redrafted and simplified, they are now clear.

The penalty for the first revoke remains unchanged—the transfer to the non-offending side of two tricks made in play after the revoke—but the penalty for a subsequent revoke in the same suit is abolished, as has also the right to call for the play of the highest or lowest card in the correction of a revoke. A feature of the new laws is the attempt to find a satisfactory method of dealing with cases in which the declarer exposes his hand and claims or concedes one or more of the remaining tricks. The fact that his claim is challenged may warn him of a danger he had overlooked. It is now provided that he must place his cards face up on the table and forthwith make an adequate statement of his intended line of play. A defender may then face his hand and suggest a play to his partner. If either defender requires that play shall continue the declarer's cards shall be left face up on the table and he may make no play inconsistent with any statement he may have made. Unless he has stated his intention to do so he may not lead a trump while either defender has a trump, and he may not finesse either in the suit led or in trumping the suit led. See S. S. Lenz, *Lenz on Bridge*, 1930; E. Culbertson, *The Contract Bridge Blue Book*, 1931; *Contract Bridge for Auction Players*, 1932, and *Contract Bridge at a Glance*, 1932; Josephine Culbertson, *Culbertson's Contract Bridge in Five Minutes*, 1937; F. P. Barton, *Contract Bridge for Beginners only*, 1937; H. Phillips, *Brush Up Your Bridge*, 1939, and *Complete Contract Bridge*, 1949.

Contraction, in physiology, a phenomenon which is peculiarly characteristic of the cells constituting muscular fibre. Under certain conditions, a chemical change takes place in the cell which alters its shape, diminishing its length and increasing its diameter. The result is a state of tension on the points of attachment of the cell to the adjacent tissue. In yielding to this strain the tissues give rise to movement in that part of the body. Thus the C. of the cells of the biceps flexes the forearm, while the C. of the extensor muscles tends to straighten it. C. may be tonic, when it is prolonged and equable; or rhythmic, when the C. occurs in periods alternating with periods of relaxation. Tonic C. is often caused by changes in the muscle as a part of its life without any reference to nervous stimuli. Rhythmic C. is usually in response to stimuli conveyed by the nerves from the central nervous system. It appears probable, however, that some muscles have the power of alternately contracting and relaxing by virtue of their own constitution. Thus, warm strips of heart muscle, taken from the animal immediately after death, continue to show a rhythmic pulsation if kept warm and supplied with oxygen. If a muscle is too frequently stimulated, the accumulation of waste products causes a lessened sensibility, which constitutes muscular fatigue. See MUSCLE.

Contractions, see ABBREVIATIONS; PALÆOGRAPHY.

Contract Note, document which is sent by a stockbroker to his client specifying that a named amount of stock, shares, bonds, etc., have been bought at a stated price, together with the amount of brokerage charged and the stamp necessary. It also includes the name of the broker and of the buyer, and the registration fee for entering the buyer's name in the company's books as a holder of shares. The Brit. stamp duties on C. Ns. are on a graduated scale, from 6d. for stock or security valued at £5 and not exceeding £100, 1s. above £100 to £500, and so on to a maximum of £5 for over £20,000.

Contracts. A contract is an agreement enforceable at law. There must be at least two parties to a contract, and they must be *ad idem* on the terms, i.e. there must be mutual assent; further, to constitute a contract there must be both the offer of a promise or a proposal, and the acceptance of that offer or proposal. C. are divisible into (a) specialties or C. under seal, and (b) simple or parol. Specialty C. must be written, sealed, and delivered. In practice they are always signed, though originally the seal stood for a signature. If delivery is made subject to a condition and to a person not a party to the deed, the document is known as an *escrow*, and only takes effect on fulfilment of the condition. A deed requires no consideration (*q.v.*), because it is said to import a consideration. Very often a deed merely gives more formal effect to a simple contract, in which case the simple contract is said to be merged in it. Parties to a deed are *estopped* from denying the truth of statements contained in it, unless fraud, duress, or mistake be proved. C. made by corporations, with certain exceptions such as in matters of daily occurrence or the hire of servant-promises made without consideration, and leases for three years on which less than two-thirds of a rack-rent is reserved, or for any term over three years, are only enforceable if entered into by deed. Simple C. comprise every contract written, verbal, or implied from conduct which is not a specialty. A simple contract requires a consideration (*q.v.*) to support it. With certain exceptions where writing is required, no particular form is essential to a simple contract. Certain simple C. must be in writing: these comprise (1) bills of exchange (including cheques) and promissory notes; (2) C. of marine insurance; (3) assignments of copyright. As a rule transfers of shares in registered companies (*q.v.*) should be in writing: they are also very often made under seal. Certain other simple C. are not enforceable unless evidenced by writing; although they may be good as a defence to an action, either by way of set-off or counter-claim. These include: (a) Under the Statute of Frauds, 29 Car. 2. c. 3, five classes of C. which must be evidenced by some memorandum or note in writing, signed by the party to be charged, or by his authorised agent: (1) A promise by an executor or administrator to answer damages out of his own

estate; (2) a promise to answer for the debt, default, or miscarriage of another, i.e. a promise of guarantee or suretyship; (3) an agreement in consideration of marriage (but not a promise to marry); (4) a contract or sale of lands or hereditaments or any interest in or concerning them; (5) an agreement not to be performed within the space of a year from the making of it. A contract to fall under (5) must be one that cannot by any possibility be performed within a year by either party. (b) Under section 4 of the Sale of Goods Act, C. for the sale of any goods of the value of £10 or upwards cannot be enforced unless the buyer has either accepted part of the goods sold and actually received the same, or given something in earnest to bind the contract, or in part payment, or unless some note or memorandum in writing of the contract has been made and signed by the party to be charged or his agent.

It is to be noted that there are certain C. which the law will not enforce at all, and these include C. which are absolutely void, or only voidable at the option of one of the parties. C. tainted by fraud are voidable at the instance of the defrauded party, but, of course, may be enforced against the fraudulent party, because no one may take advantage of his own fraud. A void contract is one which has no legal validity at all, and in fact may be said to be only the semblance of a contract; for example, where A contracts to sell a thing to B under the impression that B is C. Some C. are said to be void for illegality as being either contrary to public policy or forbidden by statute, but not all void C. are illegal. The distinction between void and illegal C. is important, because unless the cause of avoidance is pleaded the court will not set the contract aside, but in the case of illegality the court will refuse to enforce the contract of its own motion. Illegal C. include, *inter alia*, those of an immoral nature, agreements for the sale of public offices, agreements to defraud the revenue, agreements contrary to the course of justice, e.g. champertous (see under CHAMPERTY) agreements, agreements to commit a crime. A betting contract is not illegal; it is merely unenforceable (see under GAMING). A contract in general restraint of trade is void, i.e. a man cannot validly undertake not to carry on any business at all. These C. frequently arise where one person has learnt his profession or trade from another and is about to set up in competition. Such a person may validly restrain himself from carrying on a particular business for ever or anywhere, but a court of equity requires that the contract be reasonable in all the circumstances. Not every person has capacity (q.v.) to contract C. for the loan of money, or for goods supplied, other than necessities, and all accounts stated, are absolutely void if made with an infant.

At common law, speaking generally, all C. with an infant other than for necessities, or in certain cases, C. deemed to be for the infant's benefit, were voidable at his option. In the case of voidable C.,

those which involved some continual obligation on the infant like partnership agreements, or C. to pay calls as a shareholder, were, and indeed are, valid against an infant on his reaching twenty-one, unless he expressly repudiates them; but those C. which did not involve any continual obligation were only binding on the infant on his attaining twenty-one if he ratified them. The question as to what constitutes necessities is one of fact, depending on the circumstances of each particular case. A married woman can contract in all respects as if she were a single woman, and may sue and be sued on her C. This is the effect of an Act passed in 1935 which did away with the limitation of a married woman's contractual capacity to the extent to which she owned separate estate, and also abolishes the immunity from her debts of property subject to a restraint on anticipation. A contract with a lunatic is voidable only if the other party knowingly took advantage of the lunatic's state of mind. But in any case a lunatic may ratify a contract on regaining his sanity of mind, so as to bind himself on it. A contract with a corporation, in order to bind the corporation, must generally be under the corporate seal. The exceptions are (1) in C. relating to matters of trifling importance or daily occurrence or urgency, where they fall within the scope of the business of the corporation; (2) simple C. made by the agents of trading corporations and relating to the objects for which the corporation was created; (3) companies registered under the Companies (Consolidation) Act, 1929, may validly enter into C. in writing, or by parole in cases where such C. would be valid if entered into by private persons. C. by an urb. dist. council of a value exceeding £50 must be under seal. In any case a corporation can enforce its C., whether under seal or not. As to the assignment of rights under a contract, see under CHOSE IN ACTION. The assignment of duties or liabilities under a contract is only allowable with the consent of the creditor or party to whom the duties or liabilities are owed. A breach of contract necessarily gives a right of action for damages. Where the breach goes to the root of the contract the injured party may treat the breach as a discharge of his own liability under the contract and resist any action on the contract; he may also sue or counterclaim for damages, and claim payment for any work done by him in pursuance of the contract, provided the contract be severable. In some cases, generally agreements for the sale or purchase of an interest in lands, he may bring an action for specific performance (q.v.). But where the breach is partial only, there is no right to rescind, unless the parties have expressly agreed that breach of a single term shall give a right to rescind, and in any case if one party shows clearly during the subsistence of a contract his intention no longer to be bound by it, that of itself gives a right to the other to consider himself exonerated from further performance. Damages for breach of

contract are assessed so as to place the injured party as far as possible in his original position. The general rule is that damages should be such as may fairly and reasonably be considered as either arising naturally from such breach of contract, or such as may reasonably be supposed to have been in the contemplation of both parties at the time they made the contract as the probably result of the breach of it. Damages may be given for prospective or anticipated as well as for loss already sustained. A contract is terminated either by agreement, or by performance, or by breach tantamount to discharge of the other party, or by lapse of time. A substituted agreement so as to terminate the original contract must be supported by consideration (*q.v.*). Lapse of time bars the right to sue on a contract, though the contract remains valid and subsisting for all other purposes (see LIMITATIONS, STATUTES OF). C. to do impossible things are void, *ab initio*, where, too, the performance of a contract depends upon the continued existence of a given person or thing. There is always implied in the contract a condition that impossibility of performance arising from the death or loss of the thing excuses performance where it is clear that the parties must have known, *ab initio*, that its existence was essential to the contract. Fraudulent misrepresentations, *i.e.*, false representations of fact made with knowledge of their falsity, discharge the injured party from the contract, and give a right to sue for damages (see FRAUD).

An innocent misrepresentation as to a material fact gives a right to rescind; but not a right to damages, except (a) as to misstatements in a company prospectus in reliance on which the injured party has taken shares; (b) an agent who induces another to contract with him by representing himself as vested with an authority he does not in fact possess, may render himself liable to an action at the suit of such other person. Unilateral error will not, as a rule, excuse the party making the mistake from his liability under a contract. A person must take the consequences of his failure to express himself according to his own intentions, if what he did say would have led any reasonable man to form the conclusions arrived at by the other party as to his meaning. But where the error was induced by the other party, the mistaken party will be entitled to rescind. A mutual mistake as to the identity of the thing about which a contract is made would render the contract null and void (see MISTAKE); and generally, where a mistake is mutual, a court of equity can amend the contract, and rectify it in accordance with the true intentions of the parties. C. induced by undue influence and duress are voidable at the option of the injured party. See S. M. Leake, *Elements of the Law of Contracts*, 1887; Sir W. R. Anson, *Principles of the English Law of Contract*, 19th ed. by J. L. Brierley, 1945.

Contralto, *It.* term in music to denote the lowest or deepest kind of female voice, the compass extending from F or

G below the middle C to F or G above the treble staff. In tone it is serious, tender, and rich, and has peculiar powers of expression, the low C. being specially marked by its fullness of tone. Fr. and Ger. musicians did not utilise this voice, but Rossini and other It. recognising its beauties adopted it, and it is now used by almost all nations in their choral music.

'Contrat Social' (Social Contract), title of Rousseau's chief work pub. in 1762. It describes the theory held by certain reformers that a contract should exist between the sovereign and the subjects, and that gov. should be carried on with the consent of the subjects. The work is divided into four parts dealing with societies, the sovereign and his rights, gov., and social institutions respectively. It did a great deal to bring about the Fr. Revolution.

Contravallation, see COUNTERVALLOCATION.

Contributory Pensions, name applied to those pensions to which the aspirant contributes from salary or wages a certain agreed percentage during working lifetime. There are many instances of contributory pension schemes in the Brit. Empire and U.S.A., and there is a marked tendency towards an increase of them. The Brit. civil service pensions are not, however, fixed on a contributory basis, although it is generally, but not officially, recognised that the scales of emolument in the various grades have been fixed with the knowledge that in ordinary circumstances a pension follows at sixty years of age. In the teaching profession, the Univs. and education authorities have, as a rule, based their pension schemes on contributory lines. Old-established business houses, banks, public utility companies, and insurance companies have done the same. The contribution is made by the simple process of deducting the required amount from the monthly salary payment. By far the greatest undertaking which has yet been attempted in respect of C. P. is that of the Brit. Gov. with the Widows', Orphans', and Old Age Contributory Pensions Act, 1925. By that Act all contributors to the insurance scheme, male and female, who were between sixty-five and seventy years of age on Jan. 2, 1928, or who had attained the age of sixty-five after that date, were entitled to an old age pension of 10s. per week, irrespective of means (provided that they had been continuously insured for not less than five years). A similar pension was payable to the wife of a contributor entitled to such a pension as from the date of her husband receiving his pension, or, if she had not then attained the age of sixty-five, as from the date on which she attained that age. That Act and later amending Acts provided pensions for widows of 10s. a week, with allowances for children under fourteen years and sixteen years if at school at the rate of 5s. a week for the eldest child and 3s. a week for each other child. The Acts also provided for a pension of 7s. 6d. a week for the orphan children (*i.e.* if

both parents were dead) of insured married men and widowers and of insured widows while under the ages mentioned above. The Act of 1925 and most of the subsequent Acts down to 1935 were repealed and re-enacted by the consolidating Act of 1936 on C. P. for widows, orphans and persons between sixty-five and seventy. The rate under this Act was still 10s. a week. The Pensions (Voluntary Contributors Act (popularly called the 'Black-coated Workers' Act), 1937, extended pension rights to some 2,000,000 independent workers—shopkeepers, professional, and other persons of small means, i.e. whose total income did not exceed £400 (man) and £250 (woman), not more than half unearned. 'Initial' entrants were eligible if under fifty-five on April 5, 1937, at weekly contributions of 1s. 3d. for a man (or 10d. for widows' and orphans' pensions only), and 6d. for a woman. But after the beginning of 1939 only entrants under forty were able to join the scheme on a weekly contribution scale, increasing with 'entry age,' viz. up to maxima of 2s. 11d. (man) and 1'1. (woman) for age thirty-nine.

In general, all males between the ages of sixteen and sixty-five and, following the Old Age and Widows' Pensions Act, 1940, all females aged sixteen up to sixty (instead of sixty-five as theretofore) who were employed within the meaning of the National Health Insurance Acts and did not hold certificates of exemption from health insurance, were required to insure for both health insurance and C. P., but certain classes of person could insure as voluntary contributors—such entrants after 1937 having the option to insure for either health or pensions or both, thus breaking the 'interlocked' system theretofore applicable alike to compulsory and voluntary contributors. Under the National Insurance Act, 1946, a retirement pension is payable for life to an insured person who is over pensionable age, has retired from regular employment, and has paid the prescribed number of contributions. See further under NATIONAL INSURANCE ACT.

Contreras, small vil. about 8 m. from Mexico City. In the early part of Aug. 1847 Maj.-Gen. Winfield Scott, of the Amer. Army, pitted his forces against the defending Mexicans, and after a stirring battle, put his enemy to rout. The victories of Churubusco (q.v.) and Molino del Rey quickly followed, and the fortified hill of Chapultepec succumbed. On Sept. 17, the city of Mexico flew a white flag, and the Amer. soldiers occupied the tn.

Contrexéville, vil. in the dept of Vosges in France, on the R. Vair, which is a trib. of the Moselle. It is noted for its mineral springs whose temp. is 52.7° F. Situated at an altitude of 1480 ft. Pop. 1000.

Control, Allied, was the term applied during (and for some time after) the First World War to that single control which was exerted in certain services, apart from naval and military, for the common good of the allied peoples. The

influence of the war was felt in the most remote corners of the five continents, and there were moments when the actual feeding of millions of people caused the utmost anxiety to the govts. concerned. At the beginning of hostilities tentative efforts, at once timid and limited, were made towards some sort of common organisation. In Aug. 1914, the Commission Internationale de Ravitaillement (C.I.R.) was estab. in London. Representatives of the buying depts. of the Allies were members of this commission, which proved its usefulness from the start. It placed orders with Brit. manufacturers who turned out all kinds of war equipment—uniforms, guns, munitions, etc. It provided a certain check on exploitation and kept down prices by the elimination of unnecessary competition. In placing orders the C.I.R. had due regard to the separate needs of the different Allies. In short, this commission was a Brit. organisation set up to assist and watch over allied purchases in the Brit. market. Much of its effectiveness was due to the fact that it was backed by Brit. credit. But the Allies' great effort in control is perhaps best represented by shipping, and the control which was eventually estab. in this service will go down to hist. as the classic example of A. C. Up to the end of 1917 each country was its own purveyor of transport. This was effected in two ways: (1) by requisitioning or commandeering of national tonnage (Great Britain took over Brit. railways from the beginning of the war); (2) by chartering neutral tonnage in the open market. This system was, however, modified in certain respects, as Great Britain, having more national tonnage at her disposal than the other Allies, was able to allot certain tonnage to France and Italy for the conveyance of war material. By the end of 1917, the Brit. Ministry of Shipping (a war-time organisation) had performed its work so efficiently that every Brit. ship was under its control both as to its cargo and its destination. The ruthless campaign which Germany was waging by submarine on allied shipping caused the efforts of the Allies to be still further extended in watchfulness and effectiveness, and following a conference in Paris in Nov. 1917 the Allied Maritime Transport Council was estab. This became the supreme instrument of A. C. in shipping. For some time after the formation of the A.M.T.C. the actual shipping arrangements proceeded on the old lines, but the agreement mentioned above had already tended towards single control. The Wheat Executive was already buying and distributing on an allied basis. The A.M.T.C. gradually assumed supreme command and performed its functions admirably to the end of the war. (See Sir J. A. Salter, *Allied Shipping Control: an Experiment in International Administration*, 1921.) In the Second World War much the same objects were accomplished by setting up a Ministry of Economic Warfare as soon as the war

broke out, and by the agreement made between the Brit. and Fr. Govs. to pool their resources (*see also* LEND LEASE). A Ministry of Shipping was set up a few weeks after the opening of the war, plans for such body to co-ordinate the activities of the merchant fleet having been made by the Board of Trade before the outbreak of the war.

The term A. C. was also applied to certain services performed by the Allies' Commission of Control in Germany and other ex-enemy countries in the way of supervising the carrying out of those clauses of the treaty of Versailles which provided for the reduction of ex-enemy forces to a definite total of effectives, and for the limitation of their munitions output.

Controlled Establishments were those industries which came under State control during the First World War. At the outbreak railways and shipping were taken over by the State, but the term C. E. was brought into use by the Munitions of War Act of 1915. Under this Act all the firms producing munitions became directly controlled by the gov. 'If the minister of munitions considers it expedient for the purpose of the successful prosecution of the war that any estab. in which munition work is carried on should be subject to the special provisions as to limitation of employers' profits and control of persons employed and other matters contained in this section, he may make an order declaring that establishment to be a controlled establishment' (Munitions of War Act, 1915, Part II., section iv.). By the end of 1916 State control had extended beyond the munition factories into becoming a systematic supervision of all branches of national production, exercised under the D.O.R.A. (q.v.). By Feb. 1917, all the coal mines were under State control, and a Wool Control Board and a Cotton Control Board were estab. The purpose of these was to check prices and control the raw material. By 1918 the State control of industry was complete. After the armistice, however, as many C. E. as was practicable were decontrolled, and eventually State control disappeared altogether. Much the same machinery of control was set up in 1939 on the outbreak of the Second World War, but instead of a Ministry of Munitions a Ministry of Supply was estab. with purchasing powers extending to all manner of commodities, and later a Ministry of Production was instituted. The position in 1941 was that each of the fighting services to an overwhelming extent commanded its own factories and labour, and such disputes as arose between them were smoothed over by the production executive. Mr. Churchill in that year resisted the suggestion that the appointment of a minister of production would improve matters; and that to interpose such an official between himself as minister for defence and the heads of the supply depts. would only be an additional complication and cause of delay. But such ministry was, in fact, estab. the next year. The White Paper of Feb. 10 (1942)

stated that the minister of production would carry out all the duties theretofore exercised by the production executive set up at the beginning of 1941, except those relating to man-power and labour, which would be transferred to the minister of labour. His main duties were to allocate available resources of productive capacity and raw materials (including arrangements for their import) and the settlement of priorities, and he also exercised supervision and guidance of the various depts. concerned with production, though that was not to affect the responsibility of the ministers in charge of those depts. In 1943 the Ministry of Production issued an Order in Council conferring on it powers to appoint three directors to the board of any firm working for the gov. with gov. capital, the object of the order being to deal more effectively with a large firm of aircraft manufacturers which was not giving satisfaction.

Controller of the Navy Board was once an important official of the Navy Board, whose duties related to the supply of material required by the fleet. He was chairman of the Navy Board till its abolition in 1832, when his title and duties were transferred to one of the sea lords of the Admiralty. Before the First World War the Third Sea Lord was C. of the N.; but in 1912 the C.'s dept. was reorganised, its work distributed amongst other depts., and the title dropped. The C.'s dept. has never been revived, and its work is still distributed in accordance with the reorganisation of 1912. But when, with increase of Admiralty business during the war, Sir Eric Geddes joined the Board of Admiralty (1917), he was given the title of C. Sir Alan Anderson succeeded him as C. when Sir Eric Geddes became First Lord; but in 1918 Sir Robert Horne joined the Board of Admiralty in succession to Sir Alan Anderson and took the title of Third Civil Lord; whereupon the title of C. was once more assumed by him. The Third Sea Lord and is still borne by him. *See also* ADMIRALTY.

Controller of Stamps is the short title given to the officer in charge of that branch of the Board of Inland Revenue which deals with stamps (other than postage stamps) and joint stock companies. His full title is Controller of Stamps and Registrar of Joint Stock Companies, Business Names, Newspapers, and Bank Returns, including the Stamp Offices, London Stock Exchange, and Lloyd's. The office of the C. is in Somerset House, Strand, London. *See also* REGISTRAR.

Convalescence, *see under* NURSING.

Convalescent Hospitals. These are institutions carried on in connection with ordinary general hospitals; they differ from convalescent homes in that medical treatment is an essential feature of a convalescent hospital. When patients are discharged from hospitals it is expedient that they should live, for a time at least, in clean healthy homes in a fine neighbourhood, therefore they are sent for a time to such an institution in order to recuperate.

Convenæ, *see* COMMINGES.

Convent, assembly of persons gathered together in retirement from the world, and also the house in which such community dwells. In this wider sense it denotes either a monastery or a nunnery, or the fraternity or sisterhood of an abbey or priory; but the word as used to-day means a Christian nunnery where devout women spend their lives in prayer and works of charity and education. Most of the Eng. nunneries before the dissolution of the sixteenth century belonged to the Benedictine order. The most important of these were Shaftesbury (Dorsetshire), which, traditionally, was

wife of Edmund of Lancaster, at the close of the thirteenth century. *See also* MONASTERY; ABBEY; ; PRIORY. *Consult* Low and Pulling, *Dictionary of English History*.

Conventicle, term originally applied to a meeting of the monks in a monastery, but acquiring a special use at and after the Reformation as applied in a disparaging sense to meetings of Eng. and Scottish Nonconformists, such as the Wycliffites and Covenanters.

Convention, term applied by Eng. constitutional lawyers to an extraordinary meeting of the Houses of Parliament at a time of national crisis in contradistinction



SYON HOUSE, MIDDLESEX, FROM KIW GARDENS

John H. Stone

founded by Alfred, and became extremely wealthy; Barking (Essex), founded by Erkenwald, bishop of London, in the seventh century, Ethelburga being its first abbess; Amesbury (Wiltshire), founded in Saxon times, and refounded by John in 1199; St. Mary, Winchester; Malling (Kent); Markyate (Bedfordshire); Catesby (Northamptonshire); Clerkenwell, founded in the twelfth century; St. Helen's (London), founded in the thirteenth century; Stratford-at-Bow; Chatteris (Cambridgeshire); Polesworth (Warwickshire). The Cistercian nunneries were smaller. The chief of these were Tarrant (Dorsetshire) and Swine (Yorkshire). The Augustinians and Dominicans disputed the ownership of the large nunnery at Dartford, founded in 1355. Syon (Middlesex), founded in 1414, was among the wealthiest religious houses in England; it was held by the Briggittine (*see* BRIGIT, St.) branch of the Augustinians. The Poor Clares (*see* CLARE, St.) or female Franciscans, held sev. houses, the largest being in London, near Aldgate, founded by Blanche of Navarre,

to a meeting in session initiated by the writ of the sovereign. Instances of such Cs. in Eng. hist. are the Parliament summoned by Gen. Monk to restore Charles II. to the throne in 1660, and that summoned by the prince of Orange in 1689 before he was actually made king of England. In Fr. hist., the body which took the place of the national legislative assembly in 1792, proclaimed a republic, and in the course of its three years' duration passed a number of characteristically revolutionary measures, was called the National C. In military matters, C. denotes a treaty made between the commanders of two opposing armies concerning the terms on which a temporary cessation of hostilities shall take place between them. The last C. of this nature, in which Great Britain has been concerned was the much-abused C. of Cintra made in 1808. In U.S.A. hist. the most celebrated C. was that presided over by Washington, which met at Philadelphia on May 14, 1787, at a time of crisis in the fortunes of the new confederation of states and the failure of

Congress to meet the situation. Twelve of the states (Rhode Is. alone excepted) sent delegates, among whom were such men as Madison, Sherman, Randolph, the Pinckneys, James Wilson, and Morris. The great work was the making of the U.S.A. constitution. In U.S.A. politics the term also applies to those huge meetings of party supporters which gather together in the summer preceding the year of a presidential election for the purpose of nominating electors. There are at the present day, besides the Democratic and Republican National Cs., the Prohibition party, Socialist party, Socialist-Labour party, and National Cs. See *under* ELECTIONS.

Convention Treaties, i.e. treaties entered into between different states under which they each bind themselves to observe certain stipulations contained in the treaties. In 1843 two Acts were passed giving effect to conventions between Queen Victoria and the king of the Fr. and the U.S.A. for the apprehension of certain offenders. The Act relating to France legalised a convention providing for the surrender of persons accused of murder, forgery, or fraudulent bankruptcy who may escape to France. The Act relating to the U.S.A. is similar in its nature, but the specified crimes include in addition piracy, arson, and robbery, but not fraudulent bankruptcy. See *EXTRA-DITION*.

Convergency, in mathematics, a term implying that an infinite series continually approaches a definite finite limit as the number of terms increases. Thus the series $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \dots$ has a sum which is always less than 2, but may become greater than any assignable quantity less than 2 by sufficiently increasing the number of terms. The series is therefore said to be convergent, and to converge to the limit 2; this is otherwise expressed by saying that the sum of the series to infinity is 2. Such a series as $1 + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \dots$ is said to be *divergent*, for the sum of the terms increases as the number of terms increases without limit.

Converse, in logic, the proposition which is obtained by turning the subject of another proposition into the predicate, and the predicate into the subject. Only universal negative and particular affirmative propositions can be so treated. For instance, if we assert that no birds are quadrupeds, it must be equally true that no quadrupeds are birds; again, if it be asserted that some Englishmen are scientists, it must, at least, be true that some scientists are Englishmen. On the other hand, universal affirmative and particular negative propositions cannot be simply converted. If we assert that all men are mortals, it by no means follows that all mortals are men; and from the assertion some men are not Englishmen, it cannot be concluded that some Englishmen are not men. The general rule is that nothing can be concluded about the individuals of a class unless the first assertion includes all the individuals. Valid conversion is therefore simply stating the same fact in a different order

of words. In Euclid's geometry the propositions are of the universal affirmative type, so that a C. obtained by interchanging subject and predicate is not necessarily valid, and therefore requires a separate demonstration.

Conversion: 1. In law: (a) A wrongful act depriving another of his property permanently or for an indefinite time. The restriction to the literal or natural meaning of converting property to one's own use has long been discarded in favour of the wider notion of any unauthorised assumption of the powers of the true owner. (b) In equity, conformably to the maxim that equity considers as done that which ought to be done, the effect of words in a deed or will directing money to be expended in the purchase of land, or land to be sold and turned into money, is that the money and land are considered for all legal purposes to be actually converted into land and money respectively. 2. In logic, a proposition is said to be converted when the subject and predicate are transposed while still retaining the quality of the proposition, e.g. 'some bilateral acts are contracts' is the converse of 'all contracts are bilateral acts.' This is called *C. by limitation*. When the converse is a proposition of exactly the same form as the proposition converted, the process is called *simple C.*, e.g. 'some voluntary associations are churches' is the simple converse of 'some churches are voluntary associations.' The process of first changing the convertend (proposition to be converted) into an affirmative proposition and then converting it simply—e.g. the inference that 'some invalid documents are sealed instruments' from the proposition 'some sealed instruments are not valid documents' through the affirmative proposition 'some sealed instruments are invalid documents'—is called *C. by negation*. 3. In theology: (a) Divinely produced spiritual change of heart or disposition, as a result of which the enmity in the heart towards God and divine law, and the obstinacy of the will, give place to a supreme love for God and His moral government, and to a general reformation of conduct. (b) Proselytism, or the act of making converts to a religious faith.

Converter, iron retort used in the Bessemer process of making steel. It consists of blowing air through molten iron. An air-blast of 15 lb. per sq. in. is introduced through one of the hollow trunnions on which it is mounted, the C. being first brought to red heat by being filled with burning coke.

Converter, Rotary, electrical apparatus with a single armature connected both to a commutator and slip rings. It is normally used for converting alternating current to direct current. See *under* ELECTRIC SUPPLY.

Conveyance, in law, denotes the deed by which are transferred various kinds of property as defined by the Conveyancing Act, 1881. Property for the purposes of a C. includes real and personal property, any interest in such property, any debt,

chose in action (*q.v.*), or any other right or interest. The term C. also includes an appointment (*i.e.* the exercise of the right or power given by an earlier instrument to appoint any person as owner of property), a covenant (*q.v.*) to surrender copyholds, and a vesting declaration made on the appointment of a new trustee by virtue of which the ownership of property is transferred to the new trustee for the purposes of the trust. Cs. which simply transfer personal property are called assignments. Cs. by matter of record include private Acts of Parliament and grants by the Crown. The formal parts of an ordinary deed of C. of lands, which in these days have been, fortunately, shorn of much of their former remarkable verbiage, are: (1) The date and names of the parties; (2) the recitals of relevant facts, such as the preliminary agreement and the vendor's title; (3) the *testatum* containing the *operative words*, or words which direct attention to the object intended to be effected by the C.; (4) the recital of the consideration (*q.v.*), and receipt thereof; (5) the *habendum* showing the extent of the interest taken by the grantee; (6) reciprocal covenants (*q.v.*); (7) the signatures and seals of the parties.

Conveyancing, art of preparing conveyances (*q.v.*) of real and personal property, of investigating the title of the vendors of property, of making wills and testaments, settlements (*see also* ENTAIL) of property, and of framing the various instruments which are necessary in passing property from one person to another, so as to effectuate the intentions of the parties. By the old common law freehold lands were conveyed by *feoffment* (or gift of a *fief*) completed by delivery of possession. A number of statutes, notably the Conveyancing Act of 1881 and the Land Transfer Act of 1875, materially simplified the extraordinary intricacy of the forms or precedents once used in C. Under the Land Transfer Act, 1875, real property may be conveyed by a short form presented by Rules, the transfer being entered in an official register, and a land certificate being delivered to the transferee after the title has been officially examined. By the combined operation of the Land Transfer Acts, 1875 and 1897, and the Order in Council made under those Acts, registration of title to lands in the co. and city of London was made compulsory on sale, though the conveyance, as distinct from the registration, might, if the parties elected, still be effected by themselves or their legal agents.

The tendency of land law reform in Great Britain for many years past has been to approximate the law of realty to the law of personality. The Law of Property Act, 1922, together with some six consolidating statutes, were designed to rid Eng. land laws of the remnants of formalism and feudalism, and to introduce a revised and simplified system of deducing title. The scheme of these Acts was experimental or tentative, the object being to make a trial of the revised system

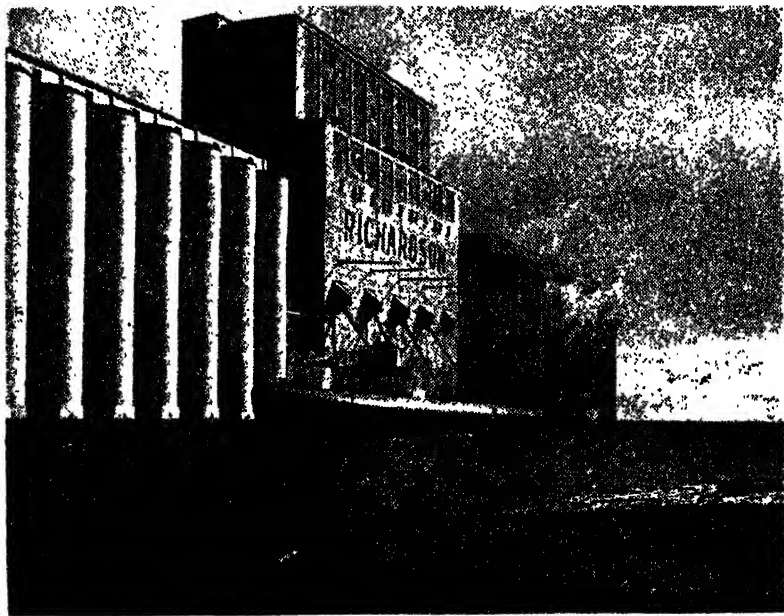
of C. without registration over a period of ten years from Jan. 1, 1926, and, at the same time, if it proved successful, to provide machinery whereby registration might be made compulsory without the necessity of obtaining the consent of the co. council of the area to which compulsory registration was to be applied. (Land Registration Act, 1925.) It is open to any co. council or council of a co. bor. to apply to the Privy Council for an order making registration of title compulsory in its area. There have been many Land Transfer Acts, beginning with that of 1862, many of them nugatory; and their purport was to make an interest in land transferable by conveyance by mere entry on a public register as shares are by entry on the books of a company. The Act of 1897 ordained that transfer in this way would be imperative; but this compulsory transfer by registration was suspended from immediate operation except to a limited extent. The Land Registration Act, 1925, repealed the Land Transfer Act, 1875, and the whole of the Land Transfer Act, 1897, except Part I., which was in turn repealed by the Administration of Estates Act, 1925. Under the Land Registration Act, 1925, an Order in Council may be made extending the area of compulsory registration without any resolution of any co. council and in the face of any resolution of any co. council to the contrary, but subject to compliance with certain conditions (*see further under* REGISTRATION OF TITLE). Since the Act of 1925 estates capable of subsisting as legal estates (*i.e.* as opposed to equitable estates) are the only interest in land in respect of which a proprietor can be registered, and all other interests except overriding interests (incumbrances, easements, etc.) and interests entered on the register before 1926 take effect as minor interests; but all interests (except undivided shares of land as to which there can now be no legal estate) entered on the register before 1926 which are not legal estates are capable of being dealt with under the Act. *See also* VENDORS AND PURCHASERS. *See Strahan, Concise Introduction to Conveyancing, 1927.*

Conveyors and Elevators. C. are mechanical appliances, the chief function of which is to transport material in bulk horizontally. E. are adapted more particularly to lifting materials, but either may perform the double office in some degree. Such machinery may be used for the loading or unloading of ships, for the transfer or lifting of material in mills, in gas-works, etc., and has generally the manifold object of reducing labour, time, and space. The magnitude of the quantities of material which lend themselves to mechanical handling will be appreciated when it is stated that the docks of the London Port Authority receive about 2,000,000 tons of grain per annum, with plant capable of dealing with 2260 tons per hour if working at full capacity. Manchester has a grain elevator able alone to lift 350 tons per hour, with mechanical facilities for dealing with large quantities of cotton, while Swansea

has plant at its docks capable of shipping 12,600 tons of coal per hour. It is evident that such large volumes warrant the installation of costly appliances for economical reasons and to ensure the prompt delivery of shipping from the condition in which nothing is earned.

C. are chiefly used for the transfer of material to bins or hoppers, to breakers if it is desired to reduce the material, or from breakers to furnaces or retorts, as in

for the band, which is liable to suffer severely if receiving harsh and heavy material when travelling at a high velocity. The devices used in connection with band C. are ingenious. If it is desired to take off at any point along the band, say for the purpose of filling bins in turn, the arrangement shown by the diagram is frequently used. This consists of a carriage supporting drums so placed as to cause the material to throw



National Film Board, Canada

THE RICHARDSON GRAIN ELEVATORS AT PORT ARTHUR, LAKE SUPERIOR

The whaleback S.S. *John Ericsson* taking on a cargo of wheat.

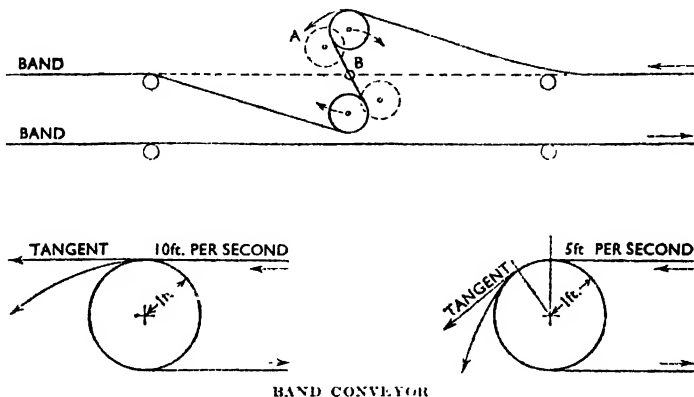
iron or gas works, and for the transport of refuse, as coke or clinker. They are occasionally applied for the purpose of carrying bales, sacks, or other individually heavy items. *Band C.* are, as the name implies, formed of bands of a suitable substance, as leather, or canvas and rubber, upon which the material to be transported lies, and travels with the band which, supported at intervals of about 6 ft. upon rollers, is actuated at one end by a driving drum. This type of conveyor is singularly well adapted to the conveyance of grain over moderate distances, and was first used for this purpose in 1868 at Liverpool. The linear velocity of the band may be from 150 to 200 ft. per min. for large coal and heavy material, up to 700 ft. for grain, the chief consideration affecting speed being regard

into the shoot at *a*, and by travelling the carriage along, the point of discharge may be varied at will. The drums, being mounted to swivel round the point *b*, may be thrown out of use if required, the slack of the band being taken up by a suitable device. A band conveyor may, however, discharge at a terminal drum into a stationary shoot. In either case there are points of design to be observed to ensure proper delivery. At a low speed the material carried may lie upon the band as it passes round the throw-off drum for a considerable angle beyond the topmost point of the drum, while on the other hand at a sufficiently high speed the material may leave the band at once on reaching the curvature of the drum. Obviously, this depends upon the joint effect of gravity and the centrifugal effect

due to the radius of the drum and its peripheral velocity; the point on the drum at which these are equal will be the point beyond which the material will no longer follow the circular path, and will be free to go forward under the influence simply of its linear velocity and of gravity. Whether the material be light or heavy, it will be subject to the same laws, with the reservation only that light and

weighted pulley, steadied by guides, to take up any stretch of the band, which ought not to exceed one twenty-fifth part of its length. It is not desirable that this tension should be greater than is necessary to ensure grip. Band conveyors, though commonly horizontal, may be inclined to as much as 1 in 2½.

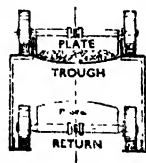
Tray C. are formed of a series of trays connected to form a continuous chain.



BAND CONVEYOR

Efficient material may be checked by air resistance in some small degree. In the case of a band approaching the drum horizontally, the velocity, in ft. per sec., at which the material will leave the band rather than follow the drum's curvature will be equal to $\sqrt{R \times 32.2}$, in which R = radius of drum in ft. For velocities less than this the point beyond which the material will no longer rest upon the band, and will be free to follow its own parabolic path, is defined as a height above the centre of rotation by $V^2/32.2$, V being velocity in ft. per sec. The point of departure at which the material goes forward in a tangential direction being thus determined, and its velocity being known, the curve it will make in falling may be set out on ordinary principles, the shoot or other receiver being suitably placed to catch it. The diagram given shows results for velocities of 10 and 5 ft. per sec., with a drum of 2 ft. diameter. It should be observed that for very low speeds or materials of low friction coefficient, the material may slip on the band before reaching the point defined above, and, acquiring a greater velocity, throw off somewhat earlier, and throw farther, than if it does not slip. The travelling band is commonly fed from a hopper, and as rough and hard material is liable to cause injury, it is essential that the material should be fed on in the direction of motion, and preferably at the band's velocity, to avoid rolling about till the proper speed is attained. The band is commonly kept at a suitable tension to grip the driving drum by a loose

The material is carried forward upon the trays, which discharge either at the end or at any point desired, by an ingenious tipping device. *Push C.* consist of a trough within which the material lies, and is pushed along by a series of push-plates attached to a chain running at about 120 ft. per min., the weight of which, with its plates, is carried by wheels running on suitable rails, or without wheels, sliding upon rests. Discharge at any point but the end is effected by slides in the bottom

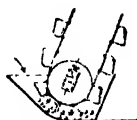
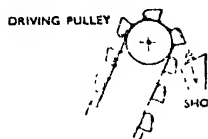


PUSH-PLATE CONVEYOR

of the trough, any one of which being drawn allows all or a part of the material to fall through. *Push C.*, when used to transport hot coke, are of the simplest construction, without rollers, the trough being formed with stoppers, or rising ends, to retain water used for quenching purposes. *Cake C.* are of extremely simple arrangement, consisting of disks strung upon a running cable, working in a continuous trough, and are generally used for loose and light materials, being run at low speed, not much exceeding 100 ft. per min. *Bucket C.*, in which

hanging buckets are spaced along a driving chain, being suitably supported by guides, are chiefly used where it is desired to arrange for horizontal movement for some distance, with vertical movement at a desired point, and are useful for lifting material above hoppers and finally distributing it to the receptacles by tipping the buckets automatically. They run at about 10 ft. per min.

E., commonly used in conjunction with *C.*, are generally of the bucket type, in which buckets of suitable form are spaced upon chains passing over drums at the top, and at the bottom. The whole is usually mounted in a box or cage, having guides for the support and control of the moving parts. The elevator buckets commonly dip into and scoop up the material to be raised at the bottom, and



BUCKET ELEVATOR

discharge at the top into shoots. For velocities of 250-350 ft. per min., and clean material, the elevator may be vertical, in which case there will be an effective throw-off into the shoot, but for such material as coal, ore, or coke, for which, having regard to economy in power and life of the buckets, more moderate speeds of from 50 to 160 ft. per min. are desirable, the elevator should be sloped at 45-75° with the horizon. Similar principles to those governing the proper throw-off from band *C.* have to be observed with respect to the discharge from elevator buckets, with the additional precaution that the material discharged must clear the buckets in advance and pass unobstructed into the shoot. If the material is at all damp or cohesive there may be difficulty in assuring this, for which reason *E.* with a pronounced slope have an advantage. *Pneumatic E.*, in which air under pressure or with suction is used, are applied for the raising and transfer of grain, considerable installations of this type have been estab. at seaports. London has elevators of this description able to deal with 1000 tons per hour, in addition to bucket *E.* Though convenient and readily adaptable to picking up at various parts of a ship's hold, the pneumatic method is not economical of power. An old form of elevator, known as the *Archimedeian screw*, now but little used, raises material by the rotation of a

worm, or of a helically-formed surface, working in a cylindrical tube. By the screw's rotation the material is carried up the sloping case and discharged at the top. The pitch of the screw influences the inclination at which the casing may slope. The angle which this makes with the vertical should be somewhat greater than the angle of pitch, plus the angle of repose of the material. The same device working horizontally is sometimes used as a conveyor. The power required to work *C.* and *E.*, generally provided by electromotors, can hardly be estimated satisfactorily by the direct application of simple principles. The work to be done is chiefly that of overcoming frictional resistances of very uncertain but considerable amounts, varying greatly with the condition of the mechanical arrangements, and the state of lubrication. In inclined coal *E.*, for instance, the power absorbed may be as much as four times that corresponding to the work of lifting the material, and in grain *E.* about two and a half times. Power may be economised in fixed *E.* by arranging that the buckets shall be filled by the material being run direct into them, instead of dropping to a lower level, from which it is picked up by the bucket dipping into it, against a considerable resistance in the case of ores and coke. For *C.* dealing with 50 tons per hour, the h.p. absorbed may be taken approximately as for:

Band <i>C.</i> , grain . . .	2 + $\frac{L}{35}$
„ „ minerals . . .	2 + $\frac{L}{30}$
Push plate <i>C.</i> (with rollers)	2.5 + $\frac{L}{25}$
„ „ „ (without rollers)	2.5 + $\frac{L}{15}$
Tipping tray <i>C.</i> . . .	2.5 + $\frac{L}{20}$
Screw <i>C.</i> . . .	3.0 + $\frac{L}{8}$

L being the length of conveyor in ft. A variety of elevator for loading ships, known as *coal hoists*, receives the wagons from rails (which may be above the quay level), and, either raising or lowering them to a desired height, discharges the wagons by bodily tipping the contents down a shoot into the vessel's hold. They are commonly worked hydraulically, the act of tipping being effected by an oscillating ram. Hoists of this description are capable of dealing with wagons of 30 tons gross weight, and are made to work up to 700 tons per hour. They are also arranged to receive wagons at the quay level, and after lifting and discharge, to deliver them at a high-level railway viaduct along which they gravitate to siding's level, an arrangement favourable to speedy working. Steel belt *C.*, as their name implies, employ a steel band instead of the usual canvas or rubber belt. They are far superior to the other type, and much heavier loads can be

supported upon them. The belt consists of finely tempered steel sheets about 300 ft. long, 1-2 ft. wide, and 1 mm. thick, riveted together to form a continuous band. The belt is not so flexible as the canvas or rubber conveyor, thus the sag due to its own weight is less, and consequently, fewer rollers are required to support it underneath. If boards are placed alongside it, the amount carried on it can be increased enormously. Another great advantage is that it can convey materials at higher temps. than can the rubber conveyor, substances heated up to 200° F. not affecting the belt unduly.

Another type of elevator is that which is applicable to the transport of passengers from one level to another on the underground railway systems. Each step of this moving stairway or escalator consists of a separate platform, shaped like an inverted L, on the under side of which are fitted two sets of small wheels which run on a continuous track that follows the contour of the stairway. At the bottom and top of the elevator the steps form a flat moving band, and thus facilitate the stepping on to and off them. The speed of the elevator varies from about 1 ft. per sec. up to about three or four times that amount. During recent years the use of continuous-belt C. in factories has been generally adopted, the articles which are assembled being passed down a long line of workers seated on either side; when the conveyor reaches the end, the finished article is taken off. This has enabled the rate of production to be increased enormously.

Convocation (Lat. *convocatio*, a calling together), term usually restricted to assemblies of the graduates of certain univs. or of the clergy. In England the name is particularly given to the assembly of the spirituality of the realm, which is called together by the archbishops of Canterbury and York, each within his own ecclcs. prov., pursuant to a royal writ. C. is summoned whenever Parliament is about to sit, and is continued as long as Parliament continues. The assemblies consist of two houses, the Upper and the Lower. The Upper House consists of the bishops and their archbishop; the Lower consists of the deans and archdeacons of every cathedral, the provost of Eton (in the case of Canterbury), proctors sent by the cathedral chapters, and proctors elected by the clergy of the diocese. The origin of C. is unknown, but by the time of Edward I. it had reached its fully developed form, the writ issued by the monarch to the metropolitans then being identical in form with that now issued. From this time till 1664 the clergy reserved the right of taxing themselves, and one of the chief duties of C. was the voting of subsidies to the Crown. The independence of C. was marked until the reign of Henry VIII., when that monarch secured the doubtful admission from C. that it 'is, always has been, and ought to be summoned by authority of royal writ.' Owing to a lack of submission shown by the Lower House

in 1717, C. was prorogued, and, except on unimportant occasions, its powers remained in abeyance until 1852. It then resumed its sitting, and its activity is steadily increasing. The addition of houses of laymen in each prov. has given the assembly a more representative character.

Convolvulus, typical genus of the order Convolvulaceæ, consists of about 170 herbaceous and shrubby plants growing in temperate and sub-tropical climates. Many of these are twining plants with large, white, trumpet-shaped flowers, and contain a milky latex. *C. arvensis* is the common bindweed found in Britain; it grows in a sandy soil, and the flowers have a sweet fragrance. *C. Scammonia*, a native of the Levant, has a rhizome which yields a resinous juice, from which the purgative drug known as scammony is obtained. In the U.S.A. the plants are known as morning-glory, and in Britain the great C., which brightens our hedges, is technically termed *C. septium*.

Convoy (Late Lat. *conviare*, to accompany), in the navy, the name given to one or more ships of war sent to protect a merchant fleet from the attacks of a national enemy or from pirates. In military service the C. is strictly a train of wagons stocked with provisions or supplies for war. The term is also used for a detachment of troops or escort appointed to protect such a train or sometimes people. See also DECLARATION OF LONDON. See Hall, *International Law*.

There are no settled rules on C. applicable to most countries. Practice, rather than law, has been the guide in the past. Each country has its own view, e.g. Great Britain and U.S.A. hold that neutral vessels sailing under C. of a commissioned vessel of their own country are liable to search by a belligerent vessel. Most continental countries take the view that such neutral vessels should not be liable to search, and that the convoying officer's declaration shall be accepted. The weakness of this view is that it presupposes that the commanding officer of a C. has personal knowledge of the cargo of the vessels convoyed, which by no means follows; the Brit. and Amer. opinion being that, however complete his good faith, an officer can hardly be expected to affirm of his personal knowledge that none of the vessels convoyed has contraband goods or enemy dispatches on board. When a vessel proposes to exercise the right of search, it is usual to fly the colours and fire a gun as a signal to the merchant vessel. Towards the end of the First World War, owing to Germany's unrestricted submarine campaign, practically all ocean-going vessels voyaged to or from Great Britain in C., and such Cs. included neutral vessels (Birkenhead, *International Law*). Very soon after the outbreak of war in 1939 the C. system was in full operation, and by the beginning of Dec. 1939 Mr. Churchill, first lord of the Admiralty, was able to announce that less than 1 ship in 750 had been sunk in C. Of course, the consequence of this effectiveness, and the Ger.

U-boats found it easier to attack neutral shipping rather than the vessels of Britain and France. This, in its turn, resulted in neutrals often chartering their ships to Great Britain for the duration of the war, which enabled them to be sure of making larger profits than had ever been made in peace, while giving them a complete guarantee against loss.

Himalayas, the Alps, Spitzbergen, and also the Bolivian Andes, when he ascended Sorata, Illimani, and Aconcagua, and explored the glaciers of Tierra del Fuego. M.P. (Unionist) for Combined Eng. Univs, 1918-31. His works include *Climbing and Exploration in the Karakoram-Himalayas* (1894); *The Alps from End to End* (1895); *The First Crossing of*



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A BRITISH CONVOY AND ESCORT, 1942

Convulsionaries, see under JANSENISM. **Convulsions**, involuntary contractions of muscles usually under conscious control. In the adult they are generally the result of brain affections. In epilepsy there is total lack of consciousness during the C.; in hysteria consciousness is not lost, though the subject may simulate insensibility. C. may be caused by the introduction of some toxic agent into the blood; a special class of cases is where poisonous matter is retained in the blood through defective action of the kidneys. C. in infants are usually caused by digestive disturbances, and are apt to be dangerous if not promptly treated. The child should be at once immersed in a warm bath up to the neck with its head kept cool by wet cloths. This has the effect of restoring consciousness. A good dose of castor oil should be administered to aid in eliminating the disturbing substances from the digestive tract.

Conway, William Augustus (1789-1828), Eng. actor, b. in London. His most famous parts were Shakespearian, including Othello, Henry V., and Mark Antony, and he created the part of Prince Zerbino in *The Noble Outlaw*, 1815. He had a romantic friendship with Mrs. Piozzi, ending his picturesque career by committing suicide by drowning off Charleston, U.S.A.

Conway of Allington, Sir William Martin Conway, first Baron (1856-1937), Eng. traveller, mountaineer, and writer, from 1901 to 1904 Slade prof. of fine arts at Cambridge. Travelled in the E., the

Spitzbergen (1807); *The Bolivian Andes* (1901); *Aconcagua and Tierra del Fuego* (1902); *The Alps* (1904); *No Man's Land* (1906); *The Sport of Collecting* (1914); *The Crowd in Peace and War* (1915); *The Abbey of St. Denis* (1916); *Mountain Memories* (1920); *The Fan Eycks and their Followers* (1921); *Palestine and Morocco* (1923); *Art Treasures of Soviet Russia* (1925); *Giorgione as a Landscape Painter* (1929); *Episodes in a Varied Life* (1932); *A Pilgrim's Quest for the Divine* (1936).

Conway, Conwy, or **Aberconwy**, seaport, mkt. tn., and municipal bor. of Carnarvonshire, N. Wales, on a steep slope at the estuary of the R. Conway, 12½ m. from Bangor, 22 m. from Carnarvon. It is one of the most striking old tns. in Britain. It is surrounded by strong walls with battlements and towers. C. castle, one of the grandest feudal fortresses of Britain, was built by Edward I. (1284) to check the Welsh. It has very thick walls and eight vast towers. The Cistercian abbey (1185) was removed by Edward I. to Maenan, near Llanwrst. Its ruins are still to be seen, and the anct. church at C. is said to be substantially the abbey church; it has a magnificent fifteenth-century rood screen. Plas Mawr, an old Elizabethan mansion, is now the home of the Royal Cambrian Academy. The castle was held for Charles I. during the Civil war. The remains of the Rom. fort of Conovium is 4½ m. from C. The site was excavated in 1926-27, showing that it was probably built about A.D. 112. Pop. 9000.

Conway, city in Arkansas and co. seat of Faulkner co. It is on the Missouri Pacific railway, and is situated in the heart of a rich cotton-growing and agric. dist. Pop. 5700.

Conybeare, John Josias (1779-1824), Eng. scholar and divine. In 1807 he was made prof. of Anglo-Saxon at Oxford, in 1812 prof. of poetry there. He was interested in geology and chem., but his chief study was A.-S. His *Illustrations of Anglo-Saxon Poetry* appeared posthumously in 1826.

Conybeare, William Daniel (1787-1857), Eng. geologist and divine, b. in London, grandson of John C. (1692-1755), dean of Christ Church, Oxford, and bishop of Bristol. Educated at Westminster School and Christ Church, Oxford. Became a fellow of the Geological Society, of which he was one of the first members, contributing many papers to the *Transactions* of the society. In 1821 researched led to his discovery and description of a skeleton of the plesiosaurus, his conjectures being closely confirmed by subsequent discoveries. He is, however, chiefly remembered for his *Outlines of the Geology of England and Wales*, written in collaboration with W. Phillips (1822). Appointed Bampton Lecturer in 1839 and instituted dean of Llandaff in 1845.

Conyza, genus of Compositæ; a strong-smelling plant, fleabane, called by Linnaeus *Conyza squamosa*. The Linnaean genus has been superseded, and the common fleabane is now *Fula* or *Pulicaria dysenterica*; the small fleabane is *Publicaria* or *P. vulgaris*; the ploughman's spikenard is *I. Conyza* or *squamosa*, its volatile oil being used in driving away insects. The genus contains some fifty herbaceous and shrubby plants found in all the continents.

Cooch Behar, or **Kuch Behar**, state of N.E. India. The cap. is Cooch Behar, on the R. Tura. The natives are called Koch or Rajbansi. Rice, tobacco, silk, and jute are produced. Area, 1318 sq. m.; pop., 639,800.

Cook, Eliza (1818-89), Eng. poetess, b. in Southwark, who spent most of her life in London. She contributed to numerous periodicals, notably the *Weekly Dispatch*, and ed. *Eliza Cook's Journal* from 1849 to 1854. In 1863, her health having given way, she received a civil list pension of £100. Sev. of her domestic lyrics, such as *God Speed the Plough*, *The Old Armchair*, *The Star of Glengarry*, and *Home in the Heart*, were very popular. Her works included four vols. of verse (1835-45); *Jottings from my Journal* (1860); and *New Echoes and other Poems* (1864).

Cook, Frederick Augustus (1865-1940), Amer. explorer, b. at Callicoon Depot, New York, son of a Ger. immigrant who changed his name. Drove a milk wagon to pay his college expenses; graduated in medicine at New York Univ. Surgeon to Peary Arctic Expedition, 1891-92; led two expeditions along the W. coast of Greenland, which were failures; ship's doctor on Belgian Antarctic expedition, 1897-99. In 1903-6 led expedition to ascend Mt. McKinley, Alaska, and

claimed to have reached the summit, but other explorers openly doubted his claim. In 1909 he startled the world by his announcement that he had reached the N. Pole, assisted by two Eskimos, one of whom he called Etukisook. A few days later, Lt. (afterwards Adm.) Robert Peary, U.S.A. Navy, returned after his discovery of the Pole, and denounced C.'s claim. Sworn statements by companions and accomplices discredited his pretensions; and, after his alleged proofs were rejected by Copenhagen Univ., he sank into obscurity. In 1922 he was sentenced to fourteen years' imprisonment for fraud in connection with a concern called the Petroleum Producers' Association, and served five years of his sentence, which was commuted by President Hoover.

Cook, Captain James (1728-79), celebrated Eng. navigator, b. at the vil. of Marton, in Yorkshire, where his father was first an agric. labourer and then a farm bailiff. He was apprenticed, when only a little over twelve, to a haberdasher at Straiths, a vil. near Whitby, but left him owing to a dispute and boarded a ship as collier's apprentice and was very soon made mate. In 1753 C. joined the navy and from now onwards his success in life was assured. On the recommendation of Sir Hugh Palliser he was appointed successively master of three sloops, in the last of which he served in the St. Lawrence, being present at the capture of Quebec. He was employed in sounding the St. Lawrence and pub. a chart of the riv. from Quebec to the sea. In 1763 he surveyed the coast of Newfoundland and the next year was appointed marine surveyor of Newfoundland and Labrador. In this capacity he pub. in the *Philosophical Transactions* an observation of a solar eclipse near Cape Ray. The charts and observations which he drew up on this Newfoundland expedition attracted the attention of the Royal Society, who invited him to take part in an expedition for the purpose of making an observation of the transit of Venus. For this purpose he received a lieutenant's commission and set sail in the *Endeavour*, a vessel of 370 tons, accompanied by sev. scientific men, including Sir Joseph Banks (q.v.). On April 13, 1769, he reached Otaheite (or Tahiti), where he erected a makeshift observatory and succeeded in making the necessary astronomical observations. From Otaheite he sailed in quest of the great continent which for centuries had been supposed to exist in the S. ocean (see TERRA AUSTRALIS INCOGNITA) and reached the is. of New Zealand, which had remained unexplored since their first discovery by Tasman in 1642. His efforts to reach the interior were baffled by the hostility of the natives, but during the ensuing 6 months he circumnavigated the is. and established the existence of the channel dividing New Zealand into two large is. From New Zealand he sailed to New Holland (Australia) and came in sight of Botany Bay, after narrowly escaping disaster on the Great Barrier Reef. Here again the natives were hostile, but, nothing

daunted, C. explored the coast and took possession of it in the name of Great Britain, naming it New S. Wales. Thence he sailed to New Guinea and to Batavia, where his much-battered ship was repaired. He arrived in England on June 11, 1771, and was at once promoted to captain's rank and put in charge of a second expedition. He now started out in command of the *Resolution*, a ship of 462 tons, and a smaller ship, the *Adventure*, of which the combined crews numbered 193 men, the object of the voyage being to pursue the quest of the great S. continent. Setting sail from Plymouth on July 13, 1772, he touched at Madeira and the Cape



CAPTAIN COOK

Engraving from a painting by Dance.

of Good Hope and explored the specified lat. Convinced that no land existed within the limits of his search he gave up the investigation on Jan. 17, 1773. After wintering at the Society Is., so naming them in honour of the Royal Society, he made further explorations eastward and, turning northwards, navigated the S. tropic from Easter Is. to the New Hebrides and discovered the Is. which he named New Caledonia. C. always showed a kindly interest in the natives and his kindness mostly won their confidence, as for example in Tahiti. As a good example of his interest to the natives of the Pacific there may here be mentioned the case of 'Omali,' as he was known to his Eng. friends. Omali was a young native of Huahine, in the Society Is., whose intelligence and engaging manners had brought him in 1773 to the notice of Capt. Furneaux, commanding the *Adventure* and C.'s second in command. With C.'s concurrence, Omali was taken in the *Adventure* to England, where he was received by George III., his portrait painted by Sir Joshua Reynolds and Nathaniel Dance, and for two years was

honoured by London society as an attractive specimen of the 'noble savage,' recently popularised by Rousseau; and finally, in 1776, brought back to Huahine by C., who took good care that the chiefs should make an appropriate grant of land to a fellow islander who had received the gift of a sword of honour from the king of England. In 1774 C. sailed as far as the Fiji Is., anchoring off Vatoa or Turtle Is. in S. Lau. After yet another attempt he gave up hope of finding land and sailed for home. Arrived back in England once more, he was promoted to the rank of post-captain, made a member of the Royal Society, and awarded the Copley Medal. He had cruised for more than three years in the Pacific and S. oceans and during the whole voyage he lost only one man through scurvy, an unparalleled triumph of discipline coupled with a scientific realisation of the causes of that disease. Above all, he had dealt the death-blow to the age-long myth of the unknown S. continent, a negative result of his explorations the political implications of which were as important as the geographical (see on this *Cook and the Opening of the Pacific*, by James A. Williamson, 1946). The attention of the gov. was now directed to the discovery of a N.-W. passage and C. volunteered to lead the expedition. His last and fatal voyage was begun on June 25, 1776. C. sailing in the *Resolution*, and his second in command, Capt. Clerke, in the *Discovery*. In the course of his voyage he discovered the Sandwich Is. (or Hawaiian Is.) which he named after the earl of Sandwich; he then proceeded to America, penetrating into what was afterwards called C.'s Inlet. Prevented from proceeding any further by a wall of ice, he returned to the Sandwich Is., where he met a premature end in 1779 in Kealahou Bay in the Is. of Hawaii in a dispute with the natives about one of the boats of the *Discovery* which had been stolen. To recover the boat C. had seized the person of the king until repatriation was made. He landed the next day, when a scuffle ensued which compelled the party of marines who had accompanied him to retreat to the boats. C. being the last to withdraw, and when he was nearing the shore he was struck from behind, the marines being unable to render any assistance. It is one of the ironies of hist. that the man who of all Pacific explorers was the most humane and considerate towards natives should have lost his valuable life in an unimportant encounter with a few pilfering natives. C., in addition to his achievements as a navigator, performed great services for his country in his geographical and scientific investigations. In 1934 his cottage in Great Ayton was purchased by the Gov. of Victoria, and transported to Melbourne for re-erection in the Fitzroy Gardens. The original deeds transferring the land to him and bearing his signature are also in the possession of the Victorian Gov. His works are *An Account of a Voyage round the World* (first printed in John Hawkesworth's *Voyages*, 1773, ed. by W. J. L. Wharton, 1893); *A Voyage*

towards the South Pole and round the World (1777); *A Voyage to the Pacific Ocean* (1781). See A. Kitson, *Captain James Cook, the Circumnavigator*, 1907; G. Campbell, *Captain James Cook, R.N., F.R.S., Circumnavigator of the Globe*, 1936; H. Carrington, *The Life of Captain Cook*, 1939; J. B. Muir, *The Life and Achievements of Captain Cook*, 1939; J. A. Williamson, *Cook and the Opening of the Pacific*, 1916.

Cook, Sir Joseph (1860-1947), Australian free trade statesman, was b. at Silverdale, Staffordshire, England, and at the age of nine worked in a coal mine. Went to Australia in 1885, and in 1891 was elected for Hartley in the New S. Wales Legislature. He was postmaster-general 1894-98; and minister of mines and agriculture, 1898-99. Became member for Parramatta in Commonwealth Parliament, 1901; and so remained for twenty years. He was minister for defence in Deakin's (q.v.) Gov., 1909-10. On the defeat of Fisher's (q.v.) Labour Gov. in 1913, C. became Prime Minister, but with a minority in the Senate, so that he soon had to resign. He held office under W. M. Hughes as minister of marine, 1917-20; and as Commonwealth treasurer, 1920-21. He was a representative of Australia at the Versailles Peace Conference, 1919. From 1921 to 1927 he was high commissioner in London for the Commonwealth; and in 1922 senior Australian delegate to the third assembly of the League of Nations.

Cook and Son, Thomas, great Eng. firm of tourist agents. The founder, Thomas C. (1808-92), was born at Melbourne in Derbyshire, and was successively a gardener's help, a wood-turner, a printer, and a Bible-reader and local missionary. In 1836 he became a total abstainer and took a great interest in the temperance movement, founding the *Children's Temperance Magazine* in 1840. It was in connection with this subject that he first conceived the idea of organising parties for travelling. He persuaded the Midland Counties Railway Company to take 570 passengers from Leicester at a return fare of one shilling, this being probably the first publicly advertised excursion. This experiment was so successful that Thomas C. continued to organise such parties, and gradually enlarged his operations. In 1865 the business was removed from Leicester to London. In 1866 the first tours to the U.S.A. were arranged, and in 1869 to Palestine. In 1882 the services of the firm were commissioned in the suppression of Arabi Pasha's rebellion to convey Sir Garnet Wolseley and his suite to Egypt and transport the sick and wounded. In 1884 it conveyed Gen. Gordon to the Sudan, and later in that year the Gordon relief expedition, which included 18,000 troops. Shortly afterwards the firm organised the Moslem pilgrimage from India to Mecca and Medina. On the death of J. M. Cook in 1899, the control of the business passed to his sons, one of whom, Frank C., was chairman until his retirement in 1929. A fusion of interests

was arranged in 1928, between Thomas C. & Son Ltd., and its associated companies—including that of Thomas C. & Son (Bankers) Ltd. and the Compagnie Internationale des Wagons-Lits et des Grands Express Européens, and the business was then organised on a greater scale than ever. The headquarters of the firm are in Berkeley Street, W. 1.

Cooke, Benjamin (c. 1734-93), Eng. musical composer and musician, son of a London music-seller. He composed anthems and other sacred music, and also popular glees, *How Sleep the Brave*, *In the Merry Month of May*.

Cooke, Sir William Fothergill (1806-1879), Eng. electrician, served in Indian Army (1826-31), studied medicine at Paris and Heidelberg, and then took up telegraphy, going into partnership with Prof. Wheatstone in 1837. They made a special study of railway signals, and in 1845 patented the single-needle apparatus. C. formed a company in 1846, and he and Wheatstone received the Albert gold medal in 1867.

Cookery, art of dressing and preparing food for human consumption by the application of heat. The names given to different kinds of C., which are considered below, arise from the various degrees and kinds of heat to which the raw materials employed are exposed during this process. Cooking increases the value of certain foods in numerous ways, but destroys some vitamins, particularly vitamin C. (antiscorbutic), therefore fresh vegetables and fruit should be taken daily to make up for this loss in cooked food. Performed while the material is fresh, cooking considerably postpones the beginning of putrefaction, and it kills harmful germs which may have infested the substance. The process brings out the flavour of the raw material in such a way as to make it more pleasing to the palate, thus increasing appetite, and, by stimulating the flow of the gastric juices, materially aiding digestion. Lastly, and most important, the main aim of C. is, by recognition of and attention to the laws of chem. involved, to render food more digestible than in its uncooked state. Research and experience have evolved various general principles which may be applied to the various classes of food. One of the chief of these, for instance, applies to the coagulation of albumen, a substance present to a large degree in animal foods. Coagulation of albumen, as seen in the white of a soft-boiled egg, is desirable, and is always attained by exposure to a gentle heat, but continued exposure to a temp. at or above the boiling-point results in the hardening of the albumen into a leathery substance extremely difficult of digestion. Thus in cooking meats, the aim of the cook should be to obtain a thin outer covering of this hardened albumen, which will prevent the escape of the meat juices by first applying considerable heat, but to prevent the toughening of the interior which would be consequent upon hardening of the albumen throughout, by removal to a lower temp. as soon as this

protective shell has been formed. The science of C., to which considerable attention is now paid in schools, institutes, polytechnics, etc., under the general title of Domestic Science courses, is of comparatively recent origin, being practically a product of the nineteenth century. The same may be said of the development of C. as a fine art, since the methods employed in the preparation of food for even the famous feasts of auct. and medieval

Grilling, which is another name for broiling, is not so well done before a fire as over it, as one side of the meat is in that case exposed to a current of cold air. The average time required for broiling is 5 min. for a steak 1 in. thick, 10 min. for a steak 1½ in. thick, and 20 min. for a steak 2 in. thick; but many foods such as steak, cutlets, bacon, fish, etc., can be cooked in a few minutes under a gas or electric grill.



PANEL FROM THE BAYEUX TAPESTRY
(Illustrating the preparation of meat for a feast)

days were few and more or less crude, depending for success on the hearty appetites and unrefined palates of the people, while the lower classes cooked their food in the most primitive fashion. Early and medieval Eng. feasts seem to have been distinguished by the immense quantities consumed, both of food and drink, rather than by the quality of the dishes served, while such recipes as have reached us are remarkable for the number and apparent incongruity of the ingredients employed. The art of C. may be said to have begun in Italy at the time of the Renaissance, and from there spread to France, which soon became its headquarters. The lt. cultured simplicity of C. seems to have been introduced into France by Catherine de' Medici, and was developed by famous chefs whose names are immortalised in the titles of their inventions, under the patronage of Louis XIV. and Louis XV. Fr. C. still remains the ideal of high-class culinary operations.

Broiling, probably the earliest known process of cooking meat, consisted in exposing the surface to direct heat, so that the outside of the meat was well browned, and the inside rendered tender and juicy. The primitive method of broiling meat was by burying it in hot ashes; but the process, when now used, is performed over a clear fire on a gridiron or similar appliance. The meat is turned during broiling by a pair of tongs, as a fork would cause the juices to escape. Small birds, such as quails, may be excellently broiled in about 10 min.; white meat as a rule requires longer cooking than red.

Roasting is really the application of the principles of broiling to larger joints of meat, for which it is an economical process and one producing excellent results. As in broiling, exposure to the greatest heat should come at the beginning of the cooking, so that the meat juices are sealed up, and the joint, when cut, exudes a rich, reddish gravy. The interior of the joint should then be allowed to cook in a rather gentler heat, by means of which the fibres are loosened, the connective tissue is changed into gelatin, the fibrin and albumen are oxidised, and the fat cells broken. The fat and tissues on the surface of the meat become caramelised and browned, and acquire a distinctive odour and flavour. The joint should be frequently basted with melted fat in order to prevent evaporation of the watery portion of the meat juice. Meat roasted before an open fire is much more wholesome than when baked in an oven, as the volatile empyreumatic oils produced on the surface are allowed to escape. Roasting is, however, possible only before an open range. The time required for roasting is from 15 to 20 min. for each pound of meat, white meat taking longer than red. Meat can be roasted in a thick saucepan, by melting sufficient fat to cover the bottom, and when hot putting in the meat, browning it on all sides, covering with a lid, and continuing to cook over a low heat.

Baking is now the usual substitute for roasting meat in an oven. It is placed in an open tin and heat applied all round at once, instead of to one side at a time; but baked meat, owing to the reabsorption

of the volatile products which cannot escape in the closed oven (this does not apply to ventilated ovens, such as gas and the latest electric stoves) is neither so digestible nor so delicate in flavour as roasted meat. Baking is also applied to other kinds of food besides meat, e.g. fish is more appetising when baked. It can either be wrapped entirely in greased paper, so retaining all the flavour, or laid in a greased casserole, with dabs of fat placed on top. Pies containing either meat or fruit are usually baked, and a meat pie possesses many advantages over plain baked meat, since the surface is protected from charring by the crust, and the meat practically stewes in its own juices. It is often difficult to cook sufficiently the contents of a pie without burning the covering paste, but this trouble may be overcome either by partly cooking the meat or fruit previous to putting on the crust, or by protecting the latter during cooking by means of a sheet of thin paper. All forms of pastry, such as pasties and open tarts, are baked, and require a hot oven, as do also cakes. The latter should be placed at the top of the oven to begin with, but after the material has risen sufficiently, removal to a cooler lower shelf is usually advisable to ensure thorough cooking of the interior. This has been attained when a clean knife, thrust into the cake, is clear on withdrawal. Especial care should be taken to close the oven door gently during the early stages of cake baking, or the risen dough may collapse. The baking of bread is governed by the same principles. Milk puddings are baked in a slow oven, and also apples with their skins on, but the cores removed. Modern electric or gas stoves are fitted with heat regulators which automatically maintain the oven at any desired temp., and in consequence less attention is necessary during the actual cooking of the food. All starchy foods are rendered more digestible by the application of dry heat, which converts the insoluble starch into soluble dextrin and sugar.

Stewing is the slow cooking of food in a little liquid in a closed vessel. It is the method recommended for tough fibrous meat, and various other ingredients, such as root vegetables and herbs, may be added to the meat and cooked together with it. Since none of the constituents of the materials used can escape, stewing is a most economical method of cooking, and is rendered doubly so by the fact that coarse and tough meat may be rendered palatable, tender, and digestible by its means. In many ways it is the ideal method of cooking meat, but success depends on keeping the temp. below about 180° F. Lean meat is best for stewing; it should be cut into convenient pieces and slightly browned by frying in fat previous to being placed in the stewpan. It should then be covered with water or stock, and set to cook for 3 to 5 hrs., particular care being taken to prevent boiling, so that the albumen does not harden, and the meat cooks in its own gradually extracted juices. Vegetables, flavourings, and

thickening matter may be added as desired. Stewing is best performed in a double vessel (if cooking is done over an open flame) as this ensures constant and gentle heat. The principle of stewing is also employed in the making of broth, and of soup or beef tea. Meat and bones for the making of soup should be placed in cold water and gradually raised to boiling-point, so that the escape of meat juices into the liquid is not hindered by hardening of the albumen. Since, however, it is not desired to eat the solid constituents, bone stock is boiled slowly for sev. hours in order to extract the gelatinous matter. It is this gelatine which causes soup to form a jelly when cold, but contrary to belief it has no great food value. By the addition, however, of vegetables, and starches such as corn-flour, barley, oats, etc., or nitrogenous matter such as cheese, macaroni, beans, or lentils, thick or cream soups are nourishing, as well as stimulating. Vegetable water, or vegetable stock also makes a good basis for soups. Stewing is also a common method of cooking fruit, by making a syrup of sugar dissolved in warm water, and adding the fruit, which is cooked gently, but not boiled.

Braising is a combination of stewing and baking, or pot roasting. It is an excellent method of cooking meat, because the cheaper cuts or tougher joints become tender after being treated this way. The meat is fried, after removing the surplus fat in a small quantity of hot fat for a few minutes until the outer covering is sealed and browned all over, and then it is removed from the pan. A liberal quantity of sliced root vegetables is lightly fried in the fat, and then placed in a saucepan or casserole, with water or stock half covering them; seasoning and a *bouquet garni* being added. The meat is then placed on top of the vegetables, and the saucepan or casserole covered with a lid; the contents being cooked over a low heat or in a slow oven for 2 to 3 hrs. Poultry, game, and root vegetables may also be cooked this way.

Boiling, or cooking by immersion in boiling water. This method is used for fresh or salted meat, game, and poultry. The temp. of the water should, however, be reduced 5 min. after the immersion of the meat (i.e. sufficient time to seal the outer covering), otherwise there is a serious risk of toughening of the connective tissue if boiling is continued. Coagulation of proteins, as in the case of the egg, takes place in a temp. of about 180° F., and an egg cooked in this temp. for 10 to 15 min. is more easily digested than one kept at boiling-point. The usual method of cooking eggs by boiling for 3 min. is far from ideal, as it allows the albuminous white to become overcooked while leaving the yolk underdone. A much better plan is to place the eggs in boiling water (half a pint to each egg) and leave them in the gradually cooling water for about 20 min. The same can also be said of meat, and it is desirable to see that the temp. of the water does not rise much above that required for the coagulation

of egg protein. This method can also be applied to fish, but to retain the flavour, steaming or baking is preferable. Puddings which contain starch and fatty elements should be kept in rapidly boiling water to ensure the bursting of the starch granules. All such puddings are spoilt, becoming sodden and heavy, if allowed to go off the boil at all.

Certain semi-liquid foods, such as milk puddings, jams, and jellies, are cooked by boiling the substance itself, constant stirring being necessary in such cases to prevent burning. Allied to boiling is *steaming*, for which the food is placed in a covered vessel having a perforated bottom which fits tightly over a saucepan of boiling water. Steaming takes rather longer than boiling, but is preferable in many ways, giving a finer flavour, and preventing the surface of puddings from becoming sodden through contact with water.

Vegetables should not be cooked too long, or at too high a temp., otherwise valuable vitamins and salts are lost. They can be steamed; cooked conservatively, i.e. in a little water; or braised. Most vegetables when grated can be eaten raw with salad or in sandwiches, and they are very nutritious taken this way. Green vegetables should be fresh; washed thoroughly, care being taken not to bruise the leaves; and they should not be left in water for more than a few minutes. Root vegetables should be scrubbed, and if necessary peeled very thinly.

Conservative cookery is the method recommended for vegetables, as only a little water is used and the flavour, valuable salts, and vitamins retained, or conserved. Green vegetables should be shredded coarsely and put into very little boiling water (about $\frac{1}{2}$ pint to 1½ lb. of vegetables), covered with a lid, and tossed occasionally to prevent burning. Attention is needed during this method of cooking, which does not take more than 10 to 15 min. The vegetables should be removed from the heat immediately they are cooked; and eaten at once. When cooking spinach it is unnecessary to add any water. A teaspoonful of fat may be added during, or after, cooking the vegetables. Carrots are delicious sliced and sautéed (i.e. cooked in a little hot fat) for a few minutes, a tablespoonful of water added, and then cooked for about 10 min. in a covered pan. Vegetables are more appetising and nutritious when cooked conservatively, than by the old method of boiling them in plenty of water. Potatoes are more nutritious when cooked in their skins, after being well scrubbed. They can be boiled gently or baked in the oven. The reason for cooking potatoes in their jackets is that the layer nearest the skin is considerably richer in mineral matter and protein than the outer flesh and central core; and the flavour is enhanced when potatoes are cooked this way. If it is impossible to retain the skins, then potatoes should be peeled very thinly, and conservatively cooked. The water in which vegetables are cooked can be salted, iodised salt

being recommended; but soda must not be added as it destroys vitamins. Vegetable water should not be thrown away, but used for soup or gravy.

Vegetables can be cooked in a waterless steamer, but boiling is preferable as there is less loss of vitamin C. Steam pressure cooking has the advantage of economy of fuel, food, and time, but it is considered by some dieticians and doctors to destroy valuable substances in the food owing to the high temps. used (212°-280°).

Frying, or cooking by hot fat, is of two kinds, wet and dry. The former, which is much the preferable, is done in a deep frying kettle containing lard, butter, dripping, or cotton-seed or olive oil. The fat should be gradually heated up to almost 400° F., when it is perfectly still and gives off a faint bluish vapour; the articles to be fried are then immersed, being usually enclosed in a wire basket for ease in handling. Fried food should be crisp, golden-brown in colour, and non-greasy, any superfluous fat on the surfaces being removed by placing the articles on absorbent paper. Fish, cutlets, croquettes, fritters, potatoes, chops, etc., are delicious when well cooked in this way, and are usually first rolled in beaten egg and breadcrumbs. Dry frying is performed in a shallow frying-pan the bottom of which is covered with hot fat. It has many disadvantages; the food is apt to be unequally cooked, greasy, and charred, and has to be constantly turned. Bacon, sausages, chops, etc., are cooked thus in their own escaping fat, while eggs, cold potatoes, and pancakes may be dry fried in a little dripping or lard. This method of frying is also known as *sauting*. All fried food should be served immediately it is cooked.

Other forms of C. include *blanching*, i.e. putting food into boiling water for a few minutes, and then plunging into cold. This helps to remove easily the peel of tomatoes, peaches, almonds, etc. Another way of blanching is by putting the food into cold water, bringing it to the boil, and plunging again into cold water: this method is used in the preparation of certain kinds of offal. To *caramelize* is to heat sugar gently until it turns brown, when it can be used for caramel custard or caramel rice; *parboiling* is partly or half boiling, the cooking being continued in another way. For instance, potatoes are more easily digested if parboiled before roasting, also a bullock's heart is rendered more tender when cooked in this manner. *Pasteurising* is the quick raising of the temp. of milk to 145° F., and keeping it there for about half an hour, then cooling it rapidly; *scalding* is heating a liquid just below boiling-point; milk, for instance, is treated this way to prevent it becoming sour quickly in hot weather; *searing* is forming a coating over the surface of meat; *souping* is cooking food slowly in vinegar and spices; herrings and mackerel can be cooked this way; and *sterilising* is boiling. Milk is often treated this way to prevent souring, and to kill harmful germs, but at the same time vitamin C. is destroyed. 'Steam

under pressure is a much more effective method of sterilising material containing bacterial spores, and a temp. of 115–20° C. for 15 min. is always to be relied on for sterilisation' (C. E. Dukas).

Beverages.—Tea, coffee, and cocoa are the beverages generally taken in Britain. Tea is the most popular and has the most varieties, dependent upon its place of growth, and according to the different leaves from which it is produced. Chinese teas have the most delicate flavour, Indian teas have the greatest degree of astringency, particularly Assam tea, which is usually used for blending with milder varieties, Ceylon teas have a rich flavour. In judging a tea one should look for a reddish-golden coloured liquid, the infused leaves should be of a bright coppery tint and evenly extracted, and there should not be much stalk with the leaves, which should not be completely unrolled after 5 min. infusion. The proper method for making tea is important; fresh water should first be brought to the boil, and the teapot thoroughly warmed so as to maintain the temp. in order to extract the finest flavour from the tea. Infusion should not be more than about 5 min., and after this the liquid, without the leaves, should be poured off into another hot pot; otherwise too much tannic acid is extracted, along with other bitter substances. *Coffee* is consumed on the Continent and in America more than in Britain. There are sev. varieties of bean, such as Mocha, Mysore, Jamaica, Kenya, Ceylon plantation, Costa Rica, Java, and Brazil. Fr. coffee usually contains chicory, which is the root of the wild endive. It is not detrimental to health, but is considerably cheaper than coffee beans. Coffee should be made strong and hot, and the beans should be freshly roasted and ground. For *café au lait* three parts of milk to one of coffee is about the proper proportion. Coffee is sometimes served iced. *Cocoa* has a certain proportion of fat and starch, and because of the latter it should be boiled for 1 or 2 min. before serving.

Fruit drinks can be made from fresh fruits, or canned fruits, and are very refreshing when served iced. Barley water may be added to make a demulcent drink suitable for the sick room, or as a beneficial drink in hot weather.

There is no food value in tea or coffee, and excessive indulgence, especially in the former, may affect the nervous system or the digestion. Tea and coffee are stimulants, and it is therefore better not to take them at night. Cocoa has very little food value, except when made with milk and sugar. Certain proprietary preparations which contain malt extract, eggs, milk, and cocoa, are sometimes used as substitutes for the above beverages.

Utensils.—Various kinds of utensils for special forms of C. have been devised and perfected. Nowadays, however, gas and electrical equipment is used increasingly, owing to its cleanliness, and saving of time. Refrigerators are used for storing and keeping food fresh; and various types of thermometer are available for testing

the temp. of ovens, milk, sugar, and fruit during preserving. The following are some of the small electrical appliances which are available, either in Britain or America, for the preparation and cooking of food and beverages: bean cutters; boiling rings; boiling plates; breakfast cookers; chafing dishes; casseroles; coffee mills, percolators, and brewers; double saucepans; drink mixers; egg poachers, or steamers; food mixers; freezers; hot cupboards; hot-water urns; ice-cream freezers; domestic, tourist, and whistling kettles; mincing machines; mixers; potato peelers; roasters; steamers; automatic toasters; warming plates; and waffle irons.

Cookers.—There are a variety of cooking stoves: *oil cookers* with or without wicks; *solid fuel cookers*, which burn coal, coke, wood, peat, or a smokeless fuel such as anthracite, coke, or charcoal; *gas cookers*, working from a mains supply, or using *Calor gas*, which is a portable fuel, delivered in small steel cylinders, the gas being stored in liquid form; and *electric cookers*. *Solid fuel cookers* include the cottage and kitchen ranges, made of cast-iron, and sometimes coated with enamel; *combined cookers* can be fitted in a living-room, in appearance are like an ordinary fireplace, and are available in various colours. The one fire heats the room, an oven, a hot chamber for plates, boils and grills, and provides hot water for baths, etc. *Back-to-back* grates have an open fire in a sitting-room (which can be shut off) with the oven and hot plate in the kitchen, and this stove also supplies hot water. *Stored-heat* cooking stoves are usually made of cast iron with heavy iron or steel blocks above the fire. The stoves are covered with a highly glossed vitreous enamel, and contain hot plates which can be covered with insulating lids when not in use, there are separate ovens for roasting, stewing, warming plates, etc. The stoves are insulated with asbestos, and consequently the kitchen never becomes over-heated. The first cost of the stored-heat cooking stoves is high, but there is considerable saving in fuel and labour. Unfortunately they are not usually designed to heat water, but water heaters may be provided. *Gas* cookers are usually the open type of cooker, or the enclosed streamlined cabinet type, which is easier to clean and has a better appearance. They are made of cast iron, or steel, with a vitreous-enamel finish. The majority of those in Great Britain are of the vertical design, i.e., with the grill and oven under the hot plate. The horizontal, table-top design, which raises the oven to an easier working level, is not so popular as it occupies more floor space. Many cookers are fitted with a thermostatic control, i.e., by the turning of a dial a desired temp. can be maintained. A simmering burner is a useful addition. *Electric* cookers are made also in vertical or horizontal designs, and most are thermostatically controlled. In order to obtain the utmost efficiency and economy it is essential to use the ground base utensils. They may have

glass inner doors to the oven, or drop-down doors, and in the U.S.A. some models are fitted with time switches and control clocks. The fireless cooker, in which food previously heated to boiling-point is kept at a high temp. for hours by surrounding it with a thick layer of non-conducting material, such as felt or hay, deserves to be better known than it is.

The kitchen should be well equipped and planned. Anything from 12 to 18 hrs. per week are spent on the preparation and cooking of meals in the ordinary household, and an additional 7 to 10 hrs. on washing up. It is, however, possible to reduce this to a minimum by the rearrangement of big equipment and utensils. The ideal kitchen need not be a large room, 8 ft. by 10 ft. or 8 ft. by 13 ft. being quite large enough for easy and efficient working. In fact, in some Amer. flats a space 6 ft. 4 in. by 4 ft. 2 in. has been successfully converted into a completely equipped kitchen by careful planning and utilisation of every piece of wall space. Recommendations for the ideal kitchen are light-coloured, washable walls, tiled, or enamel painted; doors covered with linoleum, or composition flooring, with something warm for the worker to stand on; good ventilation and light; all doors flush, i.e. no ledges for collection of dust; the cooker, cabinet, and refrigerator adjacent to the sink, which can be double or single, with double-draining boards; and built-in cupboards reaching to the ceiling to avoid dust traps.

The foods and drinks we are accustomed to consume may not, in fact, be the best for us. Varying costs of different foods often govern their general use; but habit can also be an important factor (e.g. tea drinking, and tobacco smoking). At the beginning of the last century tea was consumed at an average of about 1½ lb. per head of the pop. per annum, but now it is about six times that amount; and in Britain more tea is consumed than in all the European countries together. It is well, sometimes, to consider our general diet, together with the effects of cooking, in relation to health. Good C. is now recognised, as has been said, as a science and an art, and the study of kindred subjects, such as diet, food, and nutrition, will give the student, cook, or housewife, useful facts as a basis to work on, so enabling a proper selection to be made from the foods that are available at the time, and preparing them to the best possible advantage. See DIET; FOOD AND FEEDING; PRESERVING; PRESSURE COOKERY; SALAD; VITAMINS. See books on C. by Sir J. Elliott, 1539, and Abraham Veal, 1575. See also R. May, *The Accomplished Cook*, 1665; Dr. Pegge, *Forme of Curry*, 1780; A. Brillat-Savarin, *Physiologie du goût*, Paris, 1825; Mrs. Beeton's C. books; A. Howard, *The Art of Dining*, 1883; A. G. Payne, *Cussell's Vegetarian Cookery*, 1891; K. Jameson, *The Nursery Cookery Book*, 1929; Evelyn White and Jessie Watson, *The White-Watson Menu and Recipe Book*, 1929; J. R. Ainsworth-Davis, *Cooking through the Centuries*, 1931; V. H. Mottram, *Sound Catering for Hard*

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Cookham, par. and vil. in Berkshire on the Thames, 27 m. from London. A great fishing resort. Pop. 6000.

Cook Islands, or Hervey Islands, archipelago of small is. in the Pacific, lying between the Society and Navigator groups, between lat. 18° and 22° S., and long. 157° and 163° W., about 1700 m. N.E. of Auckland, New Zealand. The group consists of Rarotonga, Mangaia, Atiu, Mauke (Perry Is.), Atutaki, Mitiaro, Manuae, Te Au-o-tu, and Takuteta (uninhabited) in the S. group of the C. I. proper; and Tongareva, Pukapuka, Manihiki, Rakahanga, Avarau, Suvarrow, and Nassau (uninhabited) in the N. is. group. The total area is about 100 sq. m. In formation the is. include both volcanic and coralline examples, and the soil is generally fertile, copra, coffee, oranges, limes, cotton, pineapples, coco-nuts, bread-fruit, and plantains being grown. Water is scarce. The chief is., Rarotonga, with an area of 28 sq. m., forms, with its port, Avatiu, the commercial centre of the group, and trades with New Zealand. Its pop. is 5500. The natives who are now christianised and thoroughly civilised in their habits, are brown Polynesians, with a strain of Melanesian blood, and speak a dialect closely resembling the Samoan. The is. were discovered by Capt. Cook in 1777; annexed

by Great Britain in 1888, and by New Zealand in 1901. Pop. 10,000.

Cook, Mount. In the centre of the Alps in the S. Is. of New Zealand, is the highest mt. peak in Australasia, its altitude being 12,319 ft. It is covered with perpetual snow, and rises in the shape of a pyramid above the other neighbouring peaks. The Rev. W. S. Green nearly reached its summit in 1882. Fyfe ascended it in 1895, and Turner in 1906. See Freda du Faur, *The Conquest of Mount Cook*, 1936.

Cookstown, mkt. tn. in co. Tyrone, N. Ireland, 35 m. from Belfast. It has linen factories, bleach-fields, and chemical works, and a considerable trade is done in agric. produce. Pop. 4000.

Cook Strait, strait between N. and S. Island, in New Zealand. It was discovered by Capt. Cook in 1770.

Cooktown, coast tn. in Queensland, Australia, situated at the mouth of Endeavour R., 1050 m. from Brisbane. Has newspaper, two banks, pearl fisheries, and gold and tin are also worked in the dist. and the crops consist of coffee and rice. Pop. 2000.

Coolbrith, Ina Donna (1847-1928), Amer. poet, b. Illinois. Her parents early in her life migrated to California, where she spent most of her life. For twenty years she was librarian at the Oakland (California) public library, and subsequently librarian at Mercantile Library, San Francisco. Much of her poetry is coloured by her experiences of life in the mining dists. of California, and recalls the work of Bret Harte, with whom she was associated in editorial work on the *Oregonian Monthly*. She has been called the Sappho of the West, and the esteem in which her poetry was held earned for her the title of poet laureate of California, which was conferred on her by the governor and legislature in 1895. Chief pubs.: *A Perfect Day and other Poems* (1884); *Songs from the Golden Gate* (1895); *The Singer of the Sea* (1895).

Cooley, Thomas (1740-84), Irish architect, b. in England; during his early years he was apprenticed to a carpenter. In 1769 he was successful in the competition for building the Royal Exchange at Dublin, which work he finished in 1779. He erected many other buildings in Dublin and other parts of the country, including the prison called Newgate at Dublin (1773), and the pile of the Four Courts (Dublin), commenced in 1776, but unfinished at the time of his death in 1784.

Coolgardie, tn. of W. Australia, situated 360 m. from Perth. It was an extremely busy mining centre following the sensational gold finds in 1892-93. Its output of gold, however, has greatly declined and its pop. is to-day only 4000. It is, however, an important railway junction on the transcontinental line, and its aqueduct is part of the pipe-line 350 m. long that supplies water to the W. Australian goldfields.

Coolidge, (John) Calvin (1872-1933), thirtieth president of the U.S.A., was b. at Plymouth, Vermont, of old farming stock, son of John Calvin C. He was

admitted to the Bar in 1897. He was a member of the Massachusetts House of Representatives 1907-8, mayor of Northampton 1910-11; member of Massachusetts Senate 1912-15 (president thereof 1914-15); lieutenant-governor of Massachusetts 1916-17-18; governor of Massachusetts (two terms) 1919-20. In this capacity he dealt firmly with the Boston police strikers of Sept. 1919. In 1920 he received the Republican nomination for vice-presidency of the U.S.A., and he assumed office on March 4, 1921. On the death of President Harding, he was sworn in as president (Aug. 2, 1923), by his father (a notary *inter alia*), at the



CALVIN COOLIDGE

Richards

old home in Plymouth vil. He was re-elected for the term beginning March 4, 1925, and ending March 3, 1929. As president C. inherited two scandals from his predecessor—the maladministration of a bureau for war veterans and an attempt to hand over public oil lands to private companies. C. allowed these things to go to the courts and the guilty ones to be punished. During his term a considerable portion of the national debt was paid off, the income taxes were reduced, and the country enjoyed unexampled prosperity. There were those who strongly favoured his standing again, but he put a stop to all this by his sudden and cryptic announcement that he did not choose to run again.

Coolidge Tube, improved form of X-ray bulb, invented by the Amer. physicist, W. D. Coolidge. It is now in general use.

Coolies (from Tamil *kuli*, hire, or from *Koli*, the name of an aboriginal tribe of India), name applied to the unskilled labourers of India and E. Asia, and

especially to labourers of this class who have emigrated to other countries, usually under contract. Much difficulty was found in the Brit. sugar-producing colonies after the abolition of slavery in finding labourers for the plantations. The white man was physically unable to undertake the duty, and the emancipated black was unwilling to do so. In these circumstances it was suggested that the overstocked Asiatic countries might supply the need, and agents were sent to India and China to negotiate for the importation of labourers. This



E.N.A.

CHINESE COOLIE

traffic started after 1834, and was officially recognised by the Brit. Gov., under whose jurisdiction it mostly fell, ten years later. There were, however, an enormous number of abuses in the system, and those who knew it well stigmatised it as slavery. Many of the C. were attracted by elaborate promises, and some were kidnapped. They were taken over closely packed in ships and under conditions vividly recalling the slave ships. When arrived, they were practically sold by auction. The only points in which they differed from slaves were in having a regular wage paid to them and in being engaged for only seven years. The cruel oppression which characterised the whole coolie system soon brought a series of reforms. In 1854 the Brit. governor at Hong Kong forbade Brit. subjects and Brit. vessels to engage or be engaged in the exportation of Chinese C., and his action was confirmed in the following

year by the Chinese Passengers Act, which made most stringent regulations for the trade, particularly with regard to the actual sea voyage. After this the business of importing C. into S. America and the W. Indies was transferred to Portuguese traders, and was carried on from Macao. From this port the old methods were resumed, and became, if possible, still more of a slave trade. The extension of the trade to Canton led to a fresh outburst of indignation, and further legislation was carried out, this time by the Portuguese authorities. These were practically inoperative, however, and things continued with periods of reform and deterioration until 1866. In that year a conference was held by representatives of the Eng., Fr., and Chinese Govs. China insisted that the contract should include the payment of the C.'s return fare at the expiration of five years, and this put an immediate stop to the trade with the W. Indies, where permanent labourers were required. From this period the C. for Brit. colonies were drawn largely from India. Immigration of C. from India was prohibited in 1838, but the ban was removed in 1845, when the introduction of E. Indians into Brit. Guiana and Trinidad under indenture started. It continued annually—except in 1849-50—under the supervision of the Colonial and Indian Govs., being regulated by the Indian Emigration Act of 1883. This Act allowed emigration only to certain colonies where good treatment was assured. These were Brit. Guiana, Natal (then a colony), Jamaica, and most of the other Brit. W. Indian is.; the Fr. colonies of Guadeloupe and Martinique, Dutch Guiana (or Surinam), and the then Danish (now Amer.) W. Indian is. of Saint Croix. The immigration of Indian C. into the W. Indies was, however, terminated by the Gov. of India in 1917. Until recently coolie labour was employed in Singapore on work in aerodromes, but has now ended (see Labour Annual Report of Singapore for 1947). After 1904 a large number of C. were imported from China by the Transvaal authorities for work on the Rand, much against the wish of the Boers. This led to many difficulties and complications, largely on account of the compound housing plan being made use of. See CHINESE LABOUR QUESTION.

Coomaraswamy, Ananda (1877-1947), writer on Indian and Sinhalese art; b. in Ceylon. Educated at London Univ. Worked for three years in the mineralogical survey dept. of Ceylon, but, conscious of the threat to the survival of the medieval arts of India and Ceylon, he returned to England to join a movement of protest at the destructive effects of industrialism and the impact of European art on Indian culture, and for forty-five years he was engaged in reconciling the W. with Indian art and thought. Followed for research in Indian, Persian, and Mohammedan art at the Museum of Fine Arts at Boston, where he built up collections of oriental art and produced elaborate and scholarly catalogues of them. The list of his pubs. shows him as

the pioneer in a largely uncharted field: the *History of Indian and Indonesian Art*, pub. by the Royal India Society, of which he was one of the founders (1910), and by the Boston Museum; *Rajput Painting* (2 vols.), pub. by the Oxford Press in 1916, which marked an epoch in the appreciation of Kangra painting in the W.; *The Arts and Crafts of India and Ceylon*; and *The Transformation of Nature in Art* (1934). Though not himself primarily a literary scholar his trans. of vernacular poems and technical passages from the Sanskrit are essential for professed literary scholars.

Coomassi, see KUMASI.

Coon, see RACCOON.

Cooper, Abraham (1787-1868), Eng. painter whose work, consisting of over 400 pictures, is mostly battle scenes and race-horses. The best-known are those of 'Waterloo,' 'Bosworth Field,' and 'Marston Moor.'

Cooper, Alfred Duff (b. 1890), Eng. statesman and author, son of Sir Alfred C. and Lady Agnes Duff, sister of the duke of Fife; educated at Oxford Univ. Served with the Grenadier Guards in the First World War. From 1921 to 1929 he was Unionist M.P. for Oldham. Financial secretary, War Office, 1928-29. In 1931 he was elected M.P. for St. George's, Hanover Square, and returned to his former position at the War Office, 1931-34. In the same position at the Treasury, 1934-35; secretary of state for war, 1935-37; first lord of the admiralty, 1937-38, resigning after the Munich pact; minister of information, 1940-41; chancellor of duchy of Lancaster, 1941-43. Representative of Brit. Gov. with Fr. Committee of National Liberation, 1943-1944; ambass. to France, 1944-47. Author of *Talleyrand* (1932); *Haig* (1935-1936); *The Second World War* (1939); *David* (1943). Married (1919) Lady Diana Manners, youngest daughter of the eighth duke of Rutland, who was on the stage, appearing as the Madonna in *The Miracle*.

Cooper, Anthony Ashley, see SHAFTESBURY, FIRST, THIRD, AND SEVENTH EARLS OF.

Cooper, Sir Astley Paston (1768-1841), Brit. surgeon, b. in Norfolk, son of a clergyman. Early devoted himself to the study of anatomy at St. Thomas's Hospital, attending the lectures of John Hunter, and, in 1787, was appointed demonstrator of anatomy there. In 1792 he was appointed prof. of anatomy to Surgeon's Hall, a post which he occupied also in 1794-95, and in 1800 he became surgeon to Guy's Hospital. In 1802 he was awarded the Copley medal for papers read before the Royal Society on the destruction of the membrana tympani. Became a fellow of the society in 1805. In 1804-7 he pub. his great work *On Hernia*—the radical operation for which was then frequently unsuccessful owing to defective knowledge of the local anatomy. He was then appointed prof. of comparative anatomy to the Royal College of Surgeons. In 1820 he removed a tumour from the head of King George IV. Presi-

dent of the Royal College of Surgeons in 1827 and, in 1830, vice-president of the Royal Society. His other works include *Dislocations and Fractures* (1822); *Treatise on the Anatomy and Diseases of the Breast* (1829-30); and *Anatomy of the Thyroid Gland* (1832). Life by B. Cooper.

Cooper, Charles Henry (1806-66), Eng. antiquary and author. He became a solicitor in 1840, and held the position of tn. clerk of Cambridge, 1849-66. His chief works are *Guide to Cambridge* (1831); *Annals of Cambridge* (1842-53); *Athenæ Cantabrigienses* (1858, 1861); *Memorials of Cambridge* (1858-66); and *Memoir of Margaret, Countess of Richmond and Derby*, which was not pub. until 1874.

Cooper, Gladys (Lady Pearson), Eng. actress, b. Dec. 18, 1889, at Lewisham; daughter of Charles Wm. Frederick C. Married, first, H. J. Buckmaster (marriage dissolved); secondly, 1928, Sir Neville Arthur Pearson (marriage dissolved); thirdly, 1937, P. Merivale. Her first London appearance was at the Vaudeville, 1906, as Lady Swan in *The Belle of Mayfair*. Has appeared in the following (inter alia): *The Dollar Princess*, 1911; *The Importance of Being Earnest* (Cecily Cardew); *Man and Superman* (Violet), 1912; *Milestones* (Muriel Pym); *Broadway Jones*, 1914; *Half an Hour*; *The Admirable Crichton* (Lady Agatha), 1917; *Treasure of the Wells* (Clara); *The Man from Blankley's*, all-star (Marjory), 1918; *The Second Mrs. Tanqueray* (Paula), 1923; *Maqod*; *Peter Pan* (Peter), 1924; *The Last of Mr. Chenevix*, 1927; *The Indifferent Shepherd*, 1948.

Cooper, James Fenimore (1789-1851), Amer. novelist whose works were mostly of the adventure type. He came of a Quaker family, and was b. at Burlington in New Jersey. He served for some years in the navy, but he gave that up in 1811, and devoted all his attention to literature. His first book which found its mark with the public was *The Spy* in 1821; this he followed with *The Pioneers* in 1823. He also wrote *The Pilot* in 1823, and it was this work which earned for him undying fame, although *The Last of the Mohicans*, brought out in 1826, is generally considered to be his masterpiece. At this time C. went to live in France, where he wrote for the *National* on Amer. questions. Whilst he was in Paris he wrote *The Prairie* in 1827 and *The Red Rover* in 1828. In the year 1833 C. went back to America and wrote in rapid succession *The Mohicans* (1826); *Leathers in Europe* (1837-1838); *Homebound Bound* (1838); *The Pathfinder* (1840); *Mercedes of Castile* (1840); and *The Deerslayer* (1841). In 1839 he wrote *The History of the Navy of the United States*. Among his later novels were those of a trilogy known as the Littlepage MS.: *Satanstoe* and *The Chain-bearer* (1845); and *The Redskins* (1846). The last years of C.'s life were spent in heated warfare with his critics, and lawsuits followed, from which he nearly always emerged victorious. See T. R. Lounsbury, *Life of James Fenimore Cooper*, 1882; Margaret M. Gibb, *Le Roman de Bus-de-Cuir*, 1927; H. E. Spiller, *Le*

Fenimore Cooper: Critic of his Time, 1931.

Cooper, Peter (1791–1883). Amor, educationist, manufacturer, and philanthropist, *b.* in New York. He worked with his father in various trades, and in 1828 estab. iron works in Baltimore, and in 1830 constructed the first locomotive in America. He then estab. a factory in New York, and a furnace in Pennsylvania, and did much work in the laying of the first Atlantic cable. As a philanthropist he founded the Cooper Union, an institute in New York to provide for the education of the poorer people. In 1876 he was an unsuccessful candidate for the presidency.

Cooper, Samuel (1609–72), Eng. miniature painter, *b.* in London, and studied under his uncle, John Hoskins. He painted the portraits of Oliver Cromwell, Charles II., and of most of the celebrated men of the time.

Cooper, Thomas (1805–92), Chartist and poet, *b.* at Leicester. In 1810 he headed the Chartists in Leicester, ed. the *Midland Counties Illuminator*, and lectured in the pottery dists. during the riots of 1842, for which reason he was arrested on a charge of conspiracy and sedition, and imprisoned in Stafford jail for two years. While in prison he wrote *The Purgatory of Suicides*, his longest poem, and *Wise Saws and Modern Instances*, both pub. in 1845. In the following year he pub. *The Baron's Yule Feast*, and a political epic entitled *Condition of the People of England*, in ten books and the Spenserian-tanza. *The Triumphs of Perseverance* appeared in 1847, and his two novels, *Alderman Ralph* and *The Family Feud*, in 1853 and 1855 respectively. After his release from prison he lectured on politics in London, and on Christianity, and wrote *The Paradise of Martyrs* (1873); *Thoughts at Fourscore*, and *Earlier* (1885); and an account of his own life in 1872. See R. J. Conklin, *Thomas Cooper, the Chartist*, 1936.

Cooper, Thomas Sidney (1803–1902), Eng. painter, *b.* at Canterbury. He early began to earn his living as a coach-painter and as a scene painter, and afterwards became a drawing master in Canterbury. In 1831 he settled in London and showed his first pictures at the Royal Academy in 1833, enjoying an unprecedented prolonged career as an exhibitor. His name is mostly remembered for his hundreds of pictures of cattle or sheep. Some of his works are in the Tate Gallery, the National Gallery, and the Victoria and Albert Museum. A.R.A. 1845, R.A. 1867.

Cooperage: 1. The term applied to the system carried on by Dutch and other foreign vessels called coopers about the middle of the nineteenth century, of illicitly selling drink and tobacco to the fishermen of the North Sea. The six fishing powers at the international conference at The Hague, 1887, prohibited the sale of spirits in the North Sea, and in 1888 the North Sea Fisheries Bill was passed by the Brit. Gov., prohibiting the sale of spirits to fishermen. 2. An anct. craft, being known to and practised by the Romans. It is the name given to the

art of making barrels and vessels of a similar shape, which are constructed by means of curved staves fastened together by means of hoops, each stave being widest in the centre and tapering towards each end. There are sev. branches of the industry, and for each branch special coopers are employed. The wet cooper makes casks and barrels for holding liquids, and he is the most skilled of all the coopers; the dry cooper makes vessels for holding dry goods; and the white cooper makes such utensils as churns, pails, and washing-tubs, where the sides are usually straight and not curved as in the cases of casks and barrels. Machinery is now largely employed for making barrels.

Co-operation. The term, which means literally working together (Lat. *co-*, *cum*, with, and *opus*, work), is used first in a general way for any combination in production or sharing in work; it is thus, in economics, almost a synonym for 'div. of labour,' but this, the narrower sense, is mainly secondary. When we speak of C., or of the co-operative movement, we mean the system of a combination of producers and consumers for selling and buying in common, and reaping the profits from so doing, as opposed to the ordinary competitive system. It should be pointed out that the term co-operative society means rather different things in the minds of different persons using the term, each associating it with the particular kind of society with which he happens to be familiar. To the inhab. of the United Kingdom it means the Co-operative Wholesale Society, and a large number of distributive stores all over the country; to the Dane it means probably a dairy or a society for the sale of what he describes as breakfast table goods; to the Canadian a wheat pool; to the Amer. a gigantic organisation for the marketing of fruit; and to the inhab. of any part of the Brit. colonial dependencies it probably means a rural credit society on a modest scale. The various economic objects with which co-operative societies have been concerned are manifold. Three, however, of the most important types of co-operative societies have been co-operative credit societies, co-operative marketing societies, and consumers' co-operative societies. The co-operative ideal is succinctly laid down in the motto 'Each for all, and all for each,' and claims to take a middle ground between the state regulation of Socialism on the one hand and the competitive, individualistic system of society as it exists on the other. Apart from its ideals and its force as a solution of social and economic difficulties, the system and movement may be best understood from a brief sketch of its hist. In 1799 Robert Owen estab. his co-operative communistic cotton-mills in New Lanark, Scotland, and till 1828 their success was undoubted. Owen's theory of establishing self-supporting communities, based on an ideal co-operative system, was tried practically in sev. places, but each in turn collapsed, and New Lanark itself

broke down, mainly through religious and other dissensions. In 1844-45 was opened in Rochdale, Lancashire, the first of the modern co-operative stores, the Rochdale Equitable Pioneers. In a small shop started by a handful of poor weavers; the society still exists with a membership of over 15,000, and a large turnover. It is this type of C., the distributing or consumers' society, which has progressed most, at any rate in Great Britain. The main lines on which such a co-operative society is run are as follows: Any one may become a member by taking up one or more £1 shares, payable out of the dividend, with a nominal 1s. entrance payment. No member may hold more than £200 in shares. All goods are sold at the current retail prices, having been bought at wholesale prices or produced from the co-operative factories. The profit, after paying 4 to 5 per cent on capital and the expenses of the stores, is divided quarterly or half-yearly at so much per pound of money spent in purchases, which is paid on the purchasers' tokens or vouchers. This is the co-operative rebate, or, as it is familiarly called in the N. of England, the 'div'. The Eng. societies confine the profits to the consumers. The Scottish reserve a proportion for the employees. Many societies, especially some of the large ones of the N. of England, spend a proportion of their profit in educational and other institutions. Linked with these are many co-operative producing societies, some independent, others forming part of the distributive societies. A federation of co-operative societies was founded in 1863, and called the Eng. Wholesale Society. It is a federation of co-operative societies, none other being allowed to become shareholders or purchasers. Each society takes up one £5 share for every five members. The society produces practically all the staple commodities. It owns steamships, tea plantations, and has a wide system of international purchasing. Its insurance branch is an approved society under the Insurance Act.

The central propagandist body of C. is the Co-operative Union, founded in 1869, which holds an ann. congress and issues yearly the fullest statistics (address: Holyoake House, Manchester). Here, too, is the co-operative college, a residential college for adult education. The Scottish Wholesale Society was started in 1869 on similar lines to the Eng. society, but it admits its employees to collective membership on certain terms. C. in other countries has taken various forms, and on the European continent is very largely agric., and based on the rendering of credit easily available, by means of credit banks, etc. In the U.S.A. the co-operative movement is chiefly centred in building societies, which in Great Britain are considered outside the co-operative movement. There is an International Co-operative Alliance for the promotion of C. throughout the world. It is a federation of co-operative organizations in Great Britain, together with nearly all the continental nations, Canada,

and the U.S.A. It holds international congresses in various cities. As has been said, credit banks and credit societies are a prin. feature of continental co-operation, especially in pre-1939 Germany. Of these there are two main types, the Raiffeisen and the Schultze-Delitzsch banks. The first type was started in Rhemish Prussia by F. W. Raiffeisen in 1849. This was a loan bank at Flammersfeld, which was a combination of peasants borrowing money on their joint responsibility, and lending it to individual members at an increased rate of interest. The Schultze-Delitzsch banks were started in 1850 by F. H. Schultze of Delitzsch, Prussia, and were for townspeople, artisans, and craftsmen. They were not confined to localities as the Raiffeisen banks, and tended very much to ordinary banking business, especially after the co-operative bank was amalgamated with the Dresdner bank in 1903. As a political and social and economic movement, C. has not played the part hoped for by its supporters. It has tended, especially in Great Britain, to be a consumers' movement, but its direct benefits to its individual members have been great. In the past forty years, consumers' C. in Great Britain has made consistently good progress, but that of producers has been a comparative failure. Efforts to co-ordinate the interests of consumer and producer by so developing C. as to make one kind of society serve the interests of both have up to now been unsuccessful. C. of consumer has been particularly successful in the form of co-operative trading societies. The characteristic feature of these societies is that the interest on the share capital is limited to a fixed rate, and the control of members is not enhanced in proportion to their share capital. After payment of interest on capital, trading proceeds go back to the purchaser in proportion to the value of what he has purchased. Alternatively, members may elect not to take their interest and dividends, but to allow them to accumulate, and thus yield more working capital for the society. Large reserves are accumulated, with the result that consumers' C. makes marked progress even against strong outside competition.

In Great Britain there are over 1100 retail societies and three wholesale societies, and also more than a hundred productive associations controlled by consumers. The retail societies in 1939 had a total membership of 8,000,000, with a share capital of £148,500,000. Their sales in 1937 were over £240,000,000, and the surplus on the year for distribution was £29,685,000, of which £5,000,000 was disbursed as share interest and £22,953,000 as dividends on sales. Sales by the wholesale societies amounted to £143,505,000 in the same period; and those of the productive societies to £8,021,000. The co-operative movement employs nearly 300,000 persons, with an ann. salaries and wages bill (1938) of £40,000,000. Of these totals about two-thirds are in respect of distribution and

one-third production. The outstanding productive operations in the retail societies are baking and slaughtering; and in the wholesale societies, milling. The net value of productions created within the co-operative movement (i.e. after deducting cost of materials) in recent years, is the equivalent of one-sixth of the computed wholesale value of goods sold by the retail societies (statistical returns of registrar of friendly societies). A development of Brit. C. is the banking dept. of the co-operative society, which was opened as the deposit and loan dept. in 1872. It now keeps current accounts for over 1000 co-operative societies, more than 5000 trades unions, trade union branches, and friendly societies, and over 2000 working-men's clubs and other mutual organisations. The Soviet co-operative movement does not aim, as elsewhere, at the elimination of the middlemen's profits by joint purchase from producers; but it has many sides, for there is C. in agriculture, in handicrafts, in banking, and in foreign trade. The Soviet type of C. is very different from C. in Britain in its relation to the consumers; whence it would be fallacious to draw inferences from the fact that of the world co-operative membership of 150,000,000 some 60,000,000 are to be found in Russia. It is curious to note that from 1930 a system of State trading was gradually founded on the basis of single-commodity shops (e.g. textiles, hardware), and while the retail trade done by the State was progressively increased, that of the co-operatives has diminished; and, again, the abolition of urb. co-operative trade in 1935 drove the co-operative movement from the tax, without, however, solving the problem of organising urb. distribution. (See H. Baron, *Co-operation in the Soviet Union*, 1946.)

There are some successful types of co-operative societies in some of the Brit. colonial dependencies, but for various reasons (mainly rural indebtedness) co-operative credit societies are the type which has hitherto played the most important role in the co-operative movement in the colonies. In most colonial dependencies consumers' societies have played little if any part at all. The Brit. Gov. has now introduced an ordinance to provide for the formation of co-operative societies in the colonies, and to regulate their operations. The home gov. is of the opinion that the movement can be encouraged and assisted by the local govts., the two essentials being the appointment of an officer of the colonial gov., usually called the registrar of co-operative societies, charged with the duty of guiding and assisting the development of the movement, and, secondly, there should be the appropriate legal framework for the movement in the form of a co-operative societies' ordinance. For agric. co-operation see AGRICULTURAL CO-OPERATION. See also CO-PARTNERSHIP, SALESOUT. See P. Redfern, *The Story of the C.W.S.*, 1913, 193; E. G. Mears the M. O. Tobriner, *Principles and*

Practices of Co-operative Marketing, 1926; F. Hall and W. P. Watkins, *Co-operation*, 1934; G. D. H. Cole, *The Life of Robert Owen*, 1930; N. M. Kallen, *The Decline and Rise of the Consumer*, 1936; A. Orne, *Co-operative Ideals and Problems*, 1937; K. H. Campbell (Joint Registrar, co-operative credit societies, Ceylon), *Memorandum on Co-operation in the Colonies* (Colonial Office), 1944; N. Baron, *Co-operation in the Soviet Union*, 1946; *The Co-operative Movement in the Colonies* (Colonial No. 199, H.M.S.O.), 1946; and Hebe Spaul and D. H. Kay, *The Co-operative Movement at Home and Abroad*, 1947.

Cooper's Creek, or Barcoo River, rises in Queensland, Australia, and flows S. for some distance, then takes a westerly turn and flows by means of a delta into Lake Eyre. In the dry season it usually dries up, but in the rainy season there is a series of detached pools and lagoons.

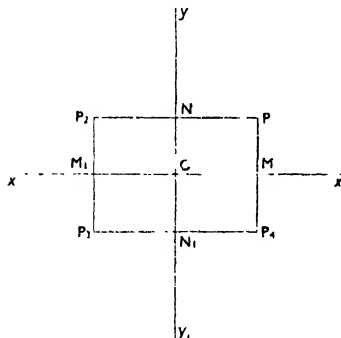
Cooper's Hill, ridge on the borders of Surrey and Berkshire, England. C. H. College was estab. there in 1871 as the Royal Indian Engineering College, and in 1885 a school of forestry was attached. The whole estab. was, however, closed in 1906. C. H. is the scene of Sir John Denham's best-known poem pub. in 1642.

Cooperstown, vil. in New York State, co. seat of Otsego co., made famous by Fenimore Cooper (see his *Correspondence*, ed. by his grandson).

Co-ordinates of a point are the length of two adjacent sides of a parallelogram formed by drawing straight lines from the point parallel to two fixed intersecting straight lines called the axes. The use of C. forms a branch of mathematics called *Analytical Geometry*, which consists of the application of the principles of algebra to geometry. Arithmetic and algebra are concerned with counting, and to this end certain symbols are used which are looked on as representing certain quantities. The symbol 4, for instance, represents the quantity obtained by the process $3+1$. We may think of a number in three different aspects: first, as the symbol, which is simply a mark on a piece of paper; second, as the concrete number, when we imagine such objects as three cows, three shillings, etc.; third, as the abstract number, when we look on the mathematical quality which is common to such different collections of objects as three cows, three horses, three shillings, etc. In arithmetic we perform operations with abstract quantities which are quite capable of a concrete interpretation; the use of the abstractions simply conduces to economy of time. Similarly, in algebra, where x and y represent certain numbers, it is quite allowable to suggest that they may mean x times and y times a given unit. Descartes extended this notion to geometry, suggesting that numbers may be represented by distances; if a unit of length is fixed on, it is obvious that any whole number can be represented by a line containing the unit the requisite number of times, while fractions may be obtained by dividing the unit into the number of parts indicated by the denomi-

nator, and taking as many of those parts as are shown by the numerator.

The first necessity of this form of algebraical geometry is to provide a means of indicating the position of a point. If we wished to indicate the position of a nail in a wall, we could do so by measuring its shortest or perpendicular distance from the floor, and its perpendicular distance from one end of the wall. Armed with these two distances, it would always be possible to re-establish the position of the nail. Descartes, therefore, chose two straight lines intersecting at right angles, to which the position of all points must be referred. The straight lines are called axes; the distance of the point to



the right of the vertical axis and its distance above the horizontal axis are called its *co-ordinates*, the former distance being called the *abscissa* and the latter the *ordinate* of the point. The settlement of the direction in which the distance is to be measured at once gives a meaning to negative numbers. The symbols -2 , -3 are equivalent to the commands subtract two and subtract three, and are therefore not capable of concrete demonstration in arithmetic unless there are given certain greater quantities from which two and three have to be subtracted. In geometry, however, a distance measured in the opposite direction to that settled as constituting the distance of the point from the axis is looked upon as negative. Thus a point three units to the left of the vertical axis has an abscissa of -3 , and a point three units below the horizontal axis has an ordinate of -3 . The point of intersection of the axes is called the origin, and is denoted by the letter O; the symbols x and y are used to represent the abscissa and ordinate respectively, the abscissa always being named first. Thus the C. of P are known if the distances MP and NP are known. Suppose $MP=a$ and $NP=b$ then the C. of P are (b, a) , those of P_2 are $(-b, a)$, those of P_3 are $(b, -a)$, those of P_4 are $(-b, -a)$; the C. of M are $(b, 0)$, of M_1 are $(-b, 0)$, of N $(0, a)$, and of N_1 $(0, -a)$. The C. of the origin are $(0, 0)$.

When the C. of two points are known, the length of the straight line joining the points can be calculated. If the straight line is oblique with respect to the axes, it may be made the hypotenuse of a right-angled triangle with a horizontal side $=x_1-x_2$, and a vertical side $=y_1-y_2$. From the property of right-angled triangles, which states that the square on the hypotenuse is equal to the sum of the squares on the sides containing the right angle, we get the length of the hypotenuse equal to the square root of $(x_1-x_2)^2 + (y_1-y_2)^2$. The square on the hypotenuse may be an irrational quantity; that is to say, its square root cannot be expressed by multiplying the unit by a definite number or fraction. It is to be observed that such symbols as x^2 , y^2 , etc., although they appear to represent areas, may actually represent length of lines.

As the distance between two points in a system of C. can be computed, so can the area of any figure bounded by straight lines. Such a figure can be cut up into right-angled triangles and trapeziums whose areas are readily found.

In analytical geometry rectangular axes are most commonly used, but oblique axes are also employed. There is yet another method by which the position of a point can be indicated by two measures. In the system of *polar C.* a fixed straight line called the initial line is taken, containing a fixed point called the pole. The position of any point can be defined by the measurement of its distance from the pole, and of the angle which the direction of the line joining it to the pole makes with the initial line. The first C. is called the *radius vector*, and the second the *rectorial angle*. Polar C. may be changed into Cartesian C. by making use of the trigonometrical ratios of the vectorial angle.

So far we have dealt with the positions of fixed points with reference to C. If a point is made to move under certain conditions, e.g. that its distance from a fixed point remains constant, it describes a path which is known as its *locus*. In the example given the locus is the circumference of a circle having the fixed point as its centre; again, the locus of a point moving at a constant distance from a fixed straight line is a straight line parallel to the fixed line. When a point moves, one or both of its C. will vary in a manner determined by the given conditions. Such C. are known as *current C.* If a point moves in such a manner that its abscissa is equal to its ordinate, its locus will be a straight line passing through the origin and bisecting the angle between the axes. The relation between the C. is expressed by saying $x=y$, or $x-y=0$. Conversely we say that the algebraical equation $x-y=0$ is graphically expressed by the straight line bisecting the angle between the axes. Now take any equation of the general form $ax+by=c=0$, or, say, the particular instance $x^2+2y-2=0$. For any value of x that may be taken there is one value for y ; e.g. when $x=1$, $y=1$, and when $x=4$, y must equal -1 to satisfy the equation. If points are marked out

with their abscissæ measured by x and their ordinates measured by the corresponding values of y , it will be found that they all lie upon the same straight line. Therefore $ax+by+c=0$ is said to be the general form of the equation of the straight line.

Equations showing relations between two quantities x and y which involve the second degree of those quantities give two values of y for each value of x , and if the points thus determined are joined, the line thus indicated is a curve. Therefore, equations of the general form $ax^2+bx+cy^2+dx+ey+f=0$ determine curves which are found to be similar to those obtained by cutting a cone by a plane in different directions. The types of these conic sections are the *parabola*, the *ellipse* (of which the circle is a particular instance), and the *hyperbola*, and the nature of the curve is determined by the nature of the co-efficients, a, b, c, d, e, f .

We have dealt so far with points on a plane, and the determination of their position with reference to axes in that plane. Any point in space may be determined by three C. Instead of axes of reference we now have planes of reference, and these are generally disposed at right angles, two and two. There are, therefore, three lines of intersection passing through a common point, the origin. In rectangular C. the distances are measured to the right of one plane above another, and in front of the third. Distances in the opposite direction to these represent negative quantities in each instance. Polar C. may also be used to denote the position of a point in space. These have special applications in astronomy, a simple instance being the determination of the position of a point on the surface of the earth. The point of origin is the centre of the earth, and the quantities required to fix the position of a point are its distance from the origin, the angle formed by this radius vector with the equatorial plane, and the angle formed by the radius vector with a given plane at right angles to the equatorial plane and passing through the origin. The distance of the point from the origin is the radius of the earth, and is therefore the same in all cases; it is sufficient, therefore, to give the angular distance from the equatorial plane, or *latitude*, and the angular distance E. or W. of the plane of the meridian at Greenwich, or *longitude*. See D. M. Y. Somerville, *Analytical Geometry of Three Dimensions*, 1934; A. Robson, *An Introduction to Analytical Geometry*, 1940.

Coorg, prov. on the E. slopes of the W. Ghats and to the S.W. of Mysore in India. It is traversed by spurs from the W. Ghats and watered by the R. Cauvery. Much of the surface is covered with forests, and in the valleys the people are engaged in agriculture, and coffee (40,000 ac.), rice, cardamoms, and cinchona are grown. The natives, a branch of the Dravidians, are sturdy intelligent people and speak a language akin to Kanaroso. The administration of justice is vested in judicial commissioners. The cap. is Merikara. C. came under Brit. control in

1834, when, at the wish of the inhab., the reigning rajah, a cruel tyrant, was deposed. In 1881 the resident in Mysore became the chief commissioner for C. but with effect from July 1, 1940, a separate chief commissioner was appointed with headquarters at Merikara. A legislative council of twenty was created in 1924. The area is 1590 sq. m., and the pop. (1941) 168,700 (of whom 135,000 are Hindus, Muslims numbering 16,000).

Coornhert, Dirck Volckertszoou (1522-1590), Dutch scholar and copper engraver, b. at Amsterdam. In 1564 he became tn. clerk of Haarlem, where he had settled as a copper engraver. Taking part in the struggle against Sp. rule in 1566, he drew up the manifesto of William of Orange and was imprisoned at The Hague by the Spaniards in 1568, but escaped to Cleves, where he found a living as an engraver. Recalled in 1572 he became secretary of Holland in the service of William of Orange for a short time, but his dislike of war drove him back to Cleves, where William continued to employ his services. His chief prose work is *Ethica*, that is the *Art of Well Living* (1586). Author of trans. into Dutch from Cicero, Seneca, Boethius, the *Odyssey*, and Boccaccio; but his Dutch version of the N. T. from the Lat. of Erasmus was never completed. Credited with great influence in establishing the literary language of Holland.

Coorong, The, arm of salt shallow water near the mouth of the R. Murray, S. Australia; it is about 100 m. long, and 2 m. broad, and is separated from Encounter Bay (36° S., 139° E.) by a narrow isthmus.

Coot, water-fowl, slate-grey below, sooty black above, with a white bill joining a white patch on the forehead. It has four toes, not fully webbed. In coloration the sexes are alike, but the male is slightly the larger. They are widely distributed on inland waters in the Brit. Isles. Their nest is built on water-plants and is made of dry rushes. The eggs are stone colour with brown specks, and are about 2 in. long.

Cootamundra, tn. in Harden co., New S. Wales. Wheat of an excellent quality is grown in the neighbourhood. Pop. 4000.

Coote, Sir Eyre (1726-83), soldier, b. in the co. of Limerick. He entered the army at an early age, and went to India in 1754. While there he urged Clive to fight the battle of Plassey, defeated the Fr. at Wandiwash, and by his capture of Pondicherry in 1761, completely overthrew the Fr. in India. On his return to England he was knighted. In 1779 he returned to India as commander-in-chief and defeated Hyder Ali at Porto Novo in 1781, and so saved Madras for the second time.

Copaiba, or Copaiwa, oleo-resin; its two chief constituents being resin and volatile oil. This substance is a secretion of trees which are natives of the W. Indies and Amazon valley. Each tree yields a large quantity of the oleo-resin, so much

sometimes that it bursts the trunk with a loud noise. It is characterised by an aromatic odour, which is not at all unpleasant, and by a bitter taste. Its chief property is its power of acting on the mucous membrane and it is used very largely in cases of chronic catarrh. It has also diuretic and laxative properties. C. is often adulterated, generally with castor oil, sometimes with other oils.

Copais, or **Topolias**, marshy lake of Boeotia in Greece. This former marsh, which was enclosed by mts. on all sides, has been drained by a series of tunnels cut in the mts., thus conveying the waters of the K. Kephisso into two adjoining lakes and into the channel of Atalante.

Copal, resinous substance obtained from trees and used in making varnishes. It is usually of a light yellowish colour, generally transparent, is found in pieces which are round in shape, and is brittle. It is partially soluble in oil of turpentine, but to be entirely so it has first to be heated, which process it undergoes before being dissolved in this oil or linseed oil for producing varnishes and lacquers. It is found in the E. Indies, S. America, and Africa. Copal *arabum* is made from various kinds of C., heated and mixed with oil of turpentine or linseed oil, both of which dissolve it.

Copalchi Bark, obtained from a shrub of Mexico and Central America, the *Croton pseudo-China* or *niveus* (Euphorbiaceae), allied to the cinchona. It is used as a febrifuge, as a substitute for quinine.

Copán, vii. in the state of Honduras on the C. R. in Central America. Its ruins, consisting of a temple, truncated pyramids, monoliths with carving and hieroglyphics, testify to its former magnificence. Even at the time of its conquest it was a large city, but it is now only a vil. situated in a very mountainous dist.

Co-parceners (Co-partitioners): (1) At common law female co-owners claiming title by descent to an estate, of inheritance in land, or co-owners of either sex claiming title *through females*: less frequently (2) by custom tenants in gavelkind (see GAVELKIND). As to (1), if a man dies intestate, leaving females as his next heirs, those take his freeholds of inheritance equally, for the rule of primogeniture does not, generally speaking, apply to females. If A dies leaving three daughters, B, C, and D, his heritable lands go to B, C, and D equally as C; if B be dead leaving two sons E (the elder), F, and a daughter G, and if D be also dead leaving a daughter H, then E, H, and their aunt C will now be C. In all cases where sev. females take one inheritance by descent they are called **parceners**, or C. If there be a title or dignity descendable to heirs of the body, the lands belonging to it may descend to C., but the dignity falls into abeyance. The descent of the crown is an exception to this rule; for if there are sev. daughters, sisters, etc., and no male heir, the crown with all its co-parcenary, or the common ownership by C., could be severed by (1.)

a partition suit in the chancery div., (II.) by the whole estate becoming vested in the sole ownership of one of the C., (III.) by one co-parcener alienating her share to a third person. Partition could always be compelled by a co-parcener. This form of tenure has now been abolished, though a knowledge of its incidents and implications is required by lawyers in tracing title.

Co-partnership, Labour, is commonly defined as consisting chiefly in the practice of profit-sharing and ownership-sharing. Profit-sharing, however, is not synonymous with co-partnership. The reality of L. C. will not necessarily be found wherever the practice of profit-sharing may prevail. The difference is clear from the objects of the L. C. Association, which was founded in 1884 'to bring about an organisation of industry based on the principle of Labour Co-partnership, that is to say, a system in which all those engaged shall share in the profit, capital, and responsibility.' The first essential to the right application of co-partnership methods is a new orientation of ideas, but while the protagonists of capital and labour continue to live in an atmosphere of class war, and trade union leaders make no genuine attempt to secure co-operation between capital and labour, L. C. can never achieve any progress. In 1910 there were 121 firms with co-partnership schemes, employing 57,000 participants; the present total is but little over 300, with 200,000 participants, and the tendency is for these figures to decrease. The chief industries with co-partnership schemes include about sixty gas, water, and electricity supply firms, with over 40,000 participants; about forty metal, engineering, and shipbuilding, with 20,000; fifteen glass, chemical, and soap firms, with 30,000; and a few financial firms, with 30,000 participants. But less than half of the total employees participate in the schemes. These statistics, however, take no account of the co-operative societies which have their own profit-sharing arrangements (see under CO-OPERATION).

Cope, Sir Arthur Stockdale (1857-1940), painter, chiefly of portraits, but also of landscapes; son of Charles West C., R.A. Educated at Norwich and Wiesbaden. Studied art at Carey and Royal Academy schools. From 1876 he contributed in the Royal Academy, and painted the portraits of King Edward VII., the last Ger. emperor, the archbishop of Canterbury, Lord Kitchener, the duke of Cambridge, King George V., the Prince of Wales, the lord chief justice, Lady Hickman, Viscount Knutsford, and many other celebrated people. His 'Some Sea Officers of the Great War' is in the National Portrait Gallery. Two honourable mentions at the Paris Salon, gold medal, and Prix Rosa Bonheur. He became R.A. in 1910, and was made K.C.V.O., 1927.

Cope, Charles West (1811-90), Eng. artist. Many of the frescoes in the House of Lords, both water-glass and otherwise, are his handiwork. His other works consist of paintings and frescoes of an historic and romantic nature.

Cope, Sir John (d. 1760), Brit. general. The date of his birth is uncertain, but he was apparently knighted before 1742, the year in which he was sent with an army to aid the queen of Hungary. He is chiefly memorable for his defeat at Prestonpans (Sept. 21, 1745) by Prince Charles, the young pretender.



Cope (Lat. *cappa*), vestment worn by priests in the Lat. Church at processions and vespers, but not at mass; in the Gk. Church by bishops and archimandrites only; and in the Armenian Church by the celebrant at mass. In the Church of England the C. forbidden in 1552, was by the twenty-fourth canon of 1603 directed to be worn by the celebrant at Holy Communion in cathedrals and collegiate churches. It is now usually worn by the priest at coronations. It is in the form of a cloak with a hood, but without sleeves, reaching to the ground, and fastened at the neck with a clasp or morse, often embroidered.

Copeck, see **КОПЕК**.

Copenhagen (Dan. *København*), cap. of Denmark, and a flourishing city and seaport, which contains one-fourth of the whole pop. of the country. Its name signifies 'Merchants' Haven'. This city is situated in the Sound and covers part of two is. The greater part of C. is situated in the is. of Zealand and occupies the E., whilst the smaller and more modern part

is situated on the is. of Amager, and occupies the N. The two is. are connected by the bridges Langebro and Knippelsbro. The portion of C. in the is. of Amager is called Christianshavn. There are many outlying suburbs of C. in the is. of Zealand, principally Østerbro, Nørrebro, Vesterbro and Frederiksberg. The outlying suburbs in the is. of Amager is Amagerbro. The prin. public square of C. is Kongens Nytorv, commanding a central position and facing the entrances to twelve streets. There is a colossal statue of Christian V. in the centre of the square. Two important buildings, the palace of Charlottenborg and the Royal Theatre (viz. the national theatre), face the square. Two statues of the great national writers, Holberg and Øhlenschläger, stand in front of the theatre, whilst inside among other sculptures is the relief figure of 'Ophelia' sculptured by Mme Sarah Bernhardt. Østergade is the centre of the most fashionable shops, and Bredgade the main street of the court, nobility, and legations. A portion of the old tn. of C. is cut off by artificial waterways and is called Slotsholm or Castle Is. Here are many important buildings to be seen, such as Christiansborg Palace, which is the seat of the gov. and the Rigsdag (Parliament), the royal library (containing 950,000 vols. and 35,000 MSS.) and the Thorvaldsen Museum—here, in an open court, lies the tomb of the famous sculptor, and here are some of the finest examples of his statuary to be seen. The cathedral church, the Vor Frue Kirke (Church of Our Lady), lies in the heart of C., N.W. of Slotsholm, and is adorned with works of sculpture by Thorvaldsen, including the celebrated 'Twelve Apostles.' Not far from the church lies the univ., founded in 1479. It is a State institution, frequented by 6500 students, and possessing a valuable library with free admission to the reading room for everybody. It contains 800,000 vols. Other useful and important institutions and buildings are Denmark's Technical College, the Veterinary and Agric. College, Serum Institute, Seed-controlling Institute, Institute of Technology, College of Commerce, College of Dentistry, State Training College for Teachers, Pinsen Medical Light Institute, Insuline Laboratory, botanical garden, National Museum, Ny Carlsberg Glyptothek or gallery of sculpture, sev. art galleries, the Exchange, National Bank, the Amalienborg Palace, which is the royal residence, the Rosenborg Palace, Frederiksberg Palace, and other palaces. The zoological gardens give free admission to 100,000 school-children and students a year. C. is the one naval station of Denmark and is also the seat of the military command. The free port became the centre of the transit trade of the Baltic and connected by steamship lines with every port on the globe. It is the centre of the air traffic of N. Europe. The broadcasting system is operated by the state. Shipbuilding is carried on, and there are extensive porcelain works. The hist. of C. dates back to about the middle of the twelfth

century, when Bishop Axel built a castle as a defence against the pirates. It was only a small fishing vil. then; in 1254 it obtained the privileges of a tn. and in 1443 it was made the cap. of Denmark. In 1940 the Gers. invaded Denmark, troops being landed at C. and other places from warships and transports on April 9. C. was liberated from the Gers. in May 1945, the first allied troops into freed Denmark being a company of a S. Lancashire parachute battalion, who flew up from Hamburg to form an escort for the allied military mission to Denmark, led by Brit. forces. Pop. (with suburbs), 927,400.

principally to the study of astronomy under Brudzewski. He soon abandoned his early idea of taking holy orders, and went as Polish student to the univ. of Bologna, where he studied canon law. In 1500 he himself lectured on mathematics at Rome with great success. After a short visit to his native land he went in the next year to Padua, where he studied medicine. In 1505 he finally left Italy, and went to spend six years at his uncle's physician at the castle of Heilsberg. On the death of Lucas in 1512, C. went to Frauenburg, where he had been nominated canon of the cathedral in 1497. Though he never took orders, his activities in this capacity



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COPENHAGEN—KONGENS NYTORV

Copenhagen Fields, N. London dist. which in old days was often the scene of huge public demonstrations. Thus on Oct. 26, 1796, and again on April 21, 1834, great meetings were held there in favour of trade unionism. The Caledonian Market (q.v.) is built on the fields.

Copenick, see KÖPENICK.

Copepoda (Gk. *κοπή*, oar; *πόδι*, podos, foot), order of Crustaceans which receive their name from the fact that typically they bear five pairs of swimming feet. They are to be found in both fresh and salt water. The free-swimming forms have always a large head, and the body ends in a caudal fork. Some of the species are phosphorescent. *Cyclops* is a well-known fresh-water genus, and *Lonchidium* is parasitic on the gills of sharks.

Copernicus, Nicolaus (1473-1543), founder of modern astronomy, b. at Thorn, in E. Prussia, then a part of Poland. After the death of his father in 1483, Nicolaus was practically adopted by his uncle, Lucas Watzelrode, afterwards bishop of Ermland. In 1491 he matriculated at the univ. of Cracow, and gave himself up

were multiform, and all his knowledge was freely laid at the disposal of the diocese. However, till the end of his life astronomy was his favourite study; and in spite of his busy life, he found time to perfect at Frauenburg the system of which he had already laid the foundation at Heilsberg. His great theory was broached in 1543 in the *De Revolutionibus Orbium Coelestium Libri VI.*, pub. at Nuremberg, and dedicated to Pope Paul III. This work demonstrates the theory, already hinted at by the Pythagorean philosophers, that the sun is the centre of the planetary system, and that the earth and the planets revolve round it. Kepler, Galileo, and others developed the system, until it was completed by Newton. According to Prof. Herbert Dingle the course of C.'s thought has been traced out by the Polish scholar, Wronkumajer, from marginal notes and amendments on the MS. of *De Revolutionibus* itself, and where observational facts failed C. supplied them himself, with an instrument of his own making, though he was essentially a thinker rather than an observer. C.

had been at work for more than thirty years before at last agreeing to the publication of his work. This was not, as is often supposed, because he feared that his work would be condemned as heretical, it was rather that the idea on which his system depended, appeared at that time so incredible that only those with an intimate knowledge of astronomy could be expected to entertain it for one moment. He was at last persuaded to publish by the earnest solicitations of many friends, including Schonberg, cardinal bishop of Capua, and Tiedemann Giese, bishop of Culm, as well as his young pupil Rheticus, who obtained permission to issue an account of the new system under the title, *Narratio Prima de Libris*



NICOLAUS COPERNICUS

Engraving after a picture in the possession of the Royal Society, presented 1776.

Revolutionum. This was the first printed work on the Copernican theory and, the resulting ridicule being less than C. had feared, he consented to the pub. of his own *magnum opus*. The pope, Paul III., accepted the dedication of the work to himself. *De Revolutionibus* represents a complete reformation of astronomy; the discovery of the true form of the planetary orbits by Kepler, and the conception of universal gravitation by Newton, would have been impossible without the preliminary heliostatic viewpoint which C. estab. The immediate effects, however, in the sphere of philosophy and theology were not conspicuous. Generally speaking, the reaction was favourable in Rom. Catholic circles but contemptuously antagonistic among the Lutheran reformers. There was no question of persecution or suppression, and it was only when new philosophies arose that the trouble began. When the notion of an infinite universe was advanced by Bruno it was realised that the work of C. had

removed the previously fatal objection to it; and when the removal of Bruno was followed by the discoveries and irrefutable polemics of Galileo, the time had come to deal with the evil at its source. *De Revolutionibus* was denounced by Luther and Melancthon as contrary to the truth—an opinion held by the popes from 1616 to 1757 with the result that it was placed on the Index and not removed from it until 1835. In the almost complete destruction of national monuments in Warsaw during the Second World War, the statue of C. by Thorwaldsen was spared. The inscription 'Nicolaus Copernicus: his Fellow Countryman,' had been changed to 'Nicolaus Copernicus: the German Nation,' on the assumption that C. could be regarded as being of Ger. descent. But this disfigurement was removed with the restoration of the memorial to the Polish people. (Prof. Herbert Dingle, 'Copernicus, 1473-1543,' *Spectator*, May 21, 1913). See L. Prowe, *Nicolaus Copernicus: Leben und Urkunden*, 1833-84; A. Armitage, *Sun, Stand Thou Still, the Life of Copernicus*, 1948.

Copertino, com in the prov. of Lecce, 25 m. W.N.W. of Otranto in Apulia, Italy. Pop. 10,000.

Copiapó: 1. Riv. in Chile, S. America. It has a length of 155 m. and a drainage area of 1170 sq. m., and reaches the Pacific 35 m. beyond the tn. The irrigation of the surrounding country and the water supply of the tn. depend wholly on this riv. 2. Tn., cap. of the prov. of Atacama, Chile, 1300 ft. above the sea. A desert oasis on the riv., it was formerly a prin. centre of Chilean mining, especially silver and copper, but has greatly declined of late. Pop. about 10,000.

Coping, term applied to the cap or top course of a wall sloping to shed water. There are three kinds of C.: feather-edged C., when the wall has edges of unequal thickness; parallel C., when the wall has a flat C.; and saddle-backed C., when the C. of the wall is thicker in the middle than at the edges.

Copland, James (1791-1870), Scottish physician, visited W. Africa and lived in London from 1820. He is chiefly remembered for his stupendous *Dictionary of Practical Medicine* (1832). For some time he ed. the *London Medical Repository*.

Copley, John Singleton (1735-1815), Amer. historical painter. b. at Boston, Massachusetts. Studied at Rome, 1774, and came to England; made Academician in 1783. He was the father of Baron Lyndhurst (q.v.). His best-known paintings are: 'Death of Chatham' and 'Death of Major Pierson.'

Coplin, William Michael Late (1864-1928), Amer. physician, b. at Clarksburg, W. Virginia. Prof. of Pathology, Jefferson Medical College, for nearly thirty years from 1896. Director of the Dept. of Public Health and Charities, Philadelphia, 1905-7. Medical director, Jefferson Hospital, 1907-12. Author of *Text-Book of Practical Hygiene*, and of a *Manual of Pathology, including Bacteriology, the Technique of Post-mortems*, and

Methods of Pathologic Research, fifth ed. rewritten and enlarged, 1912.

Copparo, tn. in the prov. of Ferrara, Italy. It has silk industries. Pop. (com.) 23,000.

Coppée, François Édouard (1842-1908), Fr. man of letters, began his literary career by writing poetry, but in later years chose to use the play and the short story as the vehicle for the expression of his ideas. At first a clerk in the Ministry of War and for some time dramatic critic to *La Patrie*, he acted from 1878 to 1881 as archivist of the Comédie Française, giving up this position on his election to the Academy. Although he had no opinion of the machinery of democracy, he allied himself with the violent Nationalists, actively opposed Dreyfus, and helped to found the notorious Ligue de la Patrie Française. In his numerous collections of poetry, including *Intimités*, *poèmes modernes* (1867-69), *Olivier* (1875), his only long poem, and *Poèmes et récits* (1886), may be found many delightful illustrations of his lyrical gifts, and especially of his skill in writing Parisian elegies and idylls. Of his plays, *Le Passant* (1869) and *Les Bijoux de la veuve*, the latter of which was inspired by the disastrous war of 1870, met with a hearty reception; but *Madame de Mautenon* (1881), *Les Jacobites* (1885), and *Pour la couronne* (1895) are his more ambitious metrical dramas. In a series of short stories entitled *Toute une jeunesse* he endeavoured to give a transcript of his early emotional experiences, but his gloomy tale *Le Coupable* (1896) has more interest and virility. Though banality of thought and sentiment not infrequently detract from the literary merits of his work, his simple, jealous patriotism, his aloofness from the prevalent style of scientific dissection, and the reality of his sympathy with the sufferings of the poor, are likely long to perpetuate his popularity.

Coppenhall, Monks and Church are two adjoining pars., 5 m. N.E. of Nantwich in Cheshire, England. The former is coterminous with the municipal bor. of Crewe.

Copper (symbol Cu, atomic weight 63.57, atomic number 29) is found as the metal in various parts of the world, chiefly in the neighbourhood of Lake Superior, but also in other parts of America, Cornwall, Siberia, and the Ural Mts. It is also found in combination with other elements, being an abundant element widely distributed. The name is derived from *æs pyrium* or bronze of Cyprus, the Romans having obtained most of their metal from that is. In the form of cuprous oxide (Cu_2O) it is found in Cornwall, S. America, and Australia, and is known as *cuprite* or *ruby ore*. Then again, the mineral *C. glance* is really C. sulphide (Cu_2S), while it is also found associated with sulphide of iron in the mineral *C. pyrites* ($\text{Cu}_2\text{S} \cdot \text{FeS}_2$), and again in the mineral *purple C. ore* ($3\text{Cu}_2\text{S} \cdot \text{Fe}_2\text{S}_3$). The basic carbonate of the metal is also found in the minerals *malachite* ($\text{CuCO}_3 \cdot \text{Cu(OH)}_2$) and *azurite* ($2\text{CuCO}_3 \cdot \text{Cu(OH)}_2$). These are the minerals chiefly

used for the extraction of C. on the large scale, but silicates, phosphate arsenates, and the oxychlorides are also known, and by modern methods the metal may sometimes be extracted from these, especially the silicates.

Methods of Extraction: 1. *Reducing process.*—From those ores which contain no sulphur, such as the carbonates and oxides, the ore may be smelted down in a blast furnace with coal or coke, when the ore is reduced; C. being left and carbon monoxide formed ($\text{Cu}_2\text{O} + \text{C} = 2\text{Cu} + \text{CO}$). 2. *English method.*—With mixed ores containing sulphides the process consists of six stages: (a) The ores (containing on an average 30 per cent of iron and 13 per cent of C., together with sulphur and silica) are calcined in a reverberatory furnace, some of the sulphur passing off as sulphur dioxide, and the metals becoming partly oxidised. (b) The calcined ore is fused, and the C. oxides react on some of the ferrous sulphide, forming cuprous sulphide and ferrous oxide (because C. possesses a greater affinity for sulphur and a smaller affinity for oxygen than the iron). This oxide of iron then unites with the silica, either present in the ore or added, to form a fusible slag, which is run off. That which remains is known as coarse metal, and consists of a mixture of ferrous and cuprous sulphides, containing about 30 per cent of C. This is allowed to flow into water, causing it to solidify in a granular form. (c) The coarse metal is again calcined, with the same effect as in (a) some of the sulphur passing off and the metals becoming oxidised. (d) This is now fused with refinery slag, and produces nearly pure cuprous sulphide, most of the iron passing into the slag, then known as metal slag, which is run off. The remainder after this process is known as fine metal, or white metal, and contains, perhaps, 75 per cent of C. (e) This white metal is then roasted in a reverberatory furnace. Some of the cuprous sulphide is oxidised into cuprous oxide, and this reacts on the cuprous sulphide left as the temp. rises, forming C. ($2\text{Cu}_2\text{O} + \text{Cu}_2\text{S} = 6\text{Cu} + \text{SO}_2$), while any remaining ferrous sulphide is turned into oxide. The metallic C. obtained is now known as blister C. (f) This is then refined by being melted on a hearth in an oxidising atmosphere. The impurities present oxidise first and volatilise off or form a slag with the siliceous matter in the furnace bed, forming a slag which is removed. When the C. begins to oxidise it reacts on any remaining cuprous sulphide, according to the equation above, and at this stage the metal is known as dry C. This is stirred with poles of wood and anthracite thrown on the surface to reduce it thoroughly to the pure metal.

Wet Processes.—(a) *By displacement.* The burnt pyrites obtained from the manu. of sulphuric acid contains from 3 to 4 per cent of C. It is not rich enough to be submitted to the smelting process, but it is ground and intimately mixed with 10 to 15 per cent of common salt. It is then roasted in a reverberatory

furnace, a large amount of the iron being thus removed as ferric oxide, while the C. remains mainly in the form of cupric chloride. This is lixiviated with water and the C. salt goes into solution, and the C. is precipitated from this solution by means of scrap-iron: $\text{CuCl}_2 + \text{Fe} = \text{Cu} + \text{FeCl}_2$.

(b) *Hydro-metallurgical*. Poor ores may sometimes be successfully treated by the hydro-metallurgical system, which consists in allowing the crushed ore to weather in the presence of water. After some months, the C. will have become converted into soluble C. sulphate, which can be run off in solution and the C. extracted by precipitation with iron or by electrolysis. (c) *Electrolysis*: Although this method is sometimes used for obtaining C. from white metal, and even from the ore, yet it is usually employed as a means of refining the already purified metal. Such refinement is necessary for most of the purposes for which C. is used, especially in electricity. Commercial C. refined in this way is one of the purest commercial metals, its purity being about 99.9 per cent. Ingots of the metal are hung in a series of tanks containing a solution of C. sulphate acidified with sulphuric acid. These form the anodes, and thin sheets of pure C. which are also placed in form the cathodes, on which, as the current passes, pure C. is deposited. The impurities pass into solution, unless they are silver and gold, when they settle as a slime on the bottom of the tank. So this method is also used to recover silver and gold, as well as to produce a very pure C., and the value of the precious metals is frequently considerable.

Properties.—It is a lustrous metal with a characteristic reddish-brown colour. This colour, however, is due to a thin film of oxide, and when the film is removed the colour of the pure metal is rosy pink. It is an extremely tough metal, and can be drawn out into a thin wire or hammered into a thin leaf. Small impurities considerably reduce this high ductility and malleability. When heated nearly to its melting-point it becomes brittle and can be powdered. Its sp. gr. is 8.94 (approximately). It is only slowly acted upon by dry air at the ordinary temps.,

but in moist air containing carbon dioxide it becomes covered with a green basic carbonate. Heated in air or oxygen it forms black cupric oxide, which flakes off the surface in scales. When volatilised in the electric arc it gives a rich emerald-green vapour. It is readily acted upon by nitric acid, and while dilute sulphuric and hydrochloric acids slowly attack it in air, strong sulphuric acid, unless heated, has no action upon it. It is an extremely good electric conductor, being second only to silver, and it is therefore used extensively in cables, for electric telegraphy, lighting, etc. It is also used extensively in electrotyping, because of its property of being deposited in a coherent form from solutions of its salts when electrolysed.

Copper alloys may be classified into: (a) Alloys with small proportions of added elements. These include arsenical C., nickel C., and manganese C., all similar in properties to pure C. but of greater strength and elasticity, and on this account used in locomotive engineering; silicon C. and cadmium C., used as hard drawn wire for electrical purposes where strength and hardness are needed together with good conductivity. (b) Soft alloys of high ductility. These include cartridge brass, Admiralty brass, and Dutch metal, used respectively for tube drawing, condenser tubes, and ornamental purposes. (c) Hard alloys of high elasticity. Wrought phosphor bronze is the typical alloy of this class. They are useful where elasticity and resistance to corrosion are required, as in small springs. (d) Alloys for high-speed machining. Alloys containing three parts of copper and two of zinc are suitable for this purpose, being cheaper and stronger than class (b). Muntz metal or yellow metal is used as sheets for ships' sheathing. (e) High tensile brasses containing 50 to 60 per cent of C. and 35 to 40 per cent of zinc, with small additions of aluminium, nickel, or manganese. They are similar to class (d) in general characteristics, but harder and stronger, and do not vibrate under alternating stresses; hence they make good castings for marine propellers and pump rods.

Consumption.

	Production		Consumption	
	1936 Short tons (2000 lb.)	Share of World Production	1936 Short tons (2000 lb.)	Share of World Consumption
U.S.A.	614,971	33.5	808,973	39.1
Chile	282,237	15.4	284,614	13.8
Canada	205,191	11.2	201,721	9.7
Rhodesia	154,337	8.4	141,094	6.8
Congo (Belgian)	105,500	5.7	140,543	6.8
Russia	91,491	5.0	125,001	6.0
Japan	86,672	4.7	82,673	4.0
Total Europe	236,910	12.9	1,032,304	49.8
Grand Total	1,777,309	100.0	2,816,923	100.0

Incomplete statistics for 1946 give totals and percentages not markedly dissimilar to those for 1936, except that production in Chile was 408,000 tons, Rhodesia fell to 129,000 tons, and the Belgian Congo rose to 144,000 tons.

See Copper Development Association. *Copper through the Ages*, 1934; E. D. Gardner, *Copper Mining in North America*, 1938; R. A. Wilkins and E. S. Bunn, *Copper and Copper Base Alloys*, 1943.

Copperas, or **Melanterite**, is ferrous sulphate heptahydrate, and is known also as green vitriol. It is prepared on the large scale by exposing heaps of iron pyrites to the action of air and moisture. The liquor which drains away contains ferrous sulphate and sulphuric acid, and the latter is mixed into ferrous sulphate by adding scrap-iron. It forms pale green monosymmetric crystals, having the composition $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, and is readily oxidised on exposure to the air. It is used for making ink, for dyeing, and as a dressing for crops.

Copperhead, see MOCCASIN SNAKE.

Copperheads, term of opprobrium applied by men of the N. states of the U.S.A. during the Civil war to fellow northerners who opposed the war policy of the Union Gov. Many of the latter did this because they did not believe it possible to conquer the confederacy. In the later years of the conflict, the term was largely applied to N. Democrats. In the U.S.A. there are two especially deadly snakes, the rattlesnake and the copperhead. The rattlesnake is popularly supposed to give warning when it is about to attack by rattling the cup-like horny attachments at the bottom of its tail, whereas the copperhead is a deadly silent hunter. Hence the popular origin of the term as applied to political opponents.

Coppermine River, riv. 475 m. long, in Mackenzie dist., Canada. The many lacustrine expansions and rapids in its course render it useless for navigation. After a southerly direction as far as Lake Gras, it turns N.W., finally reaching Coronation Gulf, Arctic Ocean.

Copperplate, see under ENGRAVING.

Coppet, vil. on the lake of Geneva, 8 m. N. by E. of Geneva, Switzerland. Here are the ruins of a chateau where Necker and his daughter, Madame de Staël, spent part of their lives. Pop. 500.

Coppice, see COPSE.

Copra, commercial and native name for the sun-dried kernel of the coco-nut, which form a staple export from the S. Pacific is. The coco-nut oil obtained from the kernel is in much demand.

Coprolites, which are frequently used as artificial manure, consist of the petrified droppings of animals, principally of extinct reptiles and fishes. In diameter they vary from about 2 to 4 in., and in composition they have often a large quantity of phosphate of lime. They are most abundant in the shale of the Lias, and in various parts of N. America.

Copronymus, see CONSTANTINE V.

Copse, or **Coppice** (from Gk. *κολαφος* add Lat. *colpore*, to cut, through O.F.

copeis), small plantation of planted or self-sown trees, which are periodically cut over before they become timber-trees, either to beautify the landscape or more often for commercial reasons. Oak C. is valuable for making wheel-spokes, etc., ash for hurdles, hoops, and the handles of implements; hazel and willow for crates and hoops, and willow and osier for basket-making. Smaller pieces of C. wood, including chestnut, maple, elder, elm, and birch, are used in many countries for fuel and charcoal.

Coptic Language, descendant of the anc. Egyptian with a considerable admixture of Gk. It was divided into four chief dialects: the Sahidic or Thebaic, the Achmimic, the Bohairic (formerly called Memphis), and the Fayumic. The earliest of these is probably the Sahidic, while the Bohairic appears later than the others and then assumes the first place. The Bible was trans. into no fewer than three dialects before the fourth century. Hardly any of the C. literature is original. With the exception of some sermons of Shenute, a monk of Atrêpe, it consists chiefly of translations from the Gk. At first C. was almost monosyllabic like the Egyptian, but at a later period it became highly agglutinate. Hence the morphological side was hardly developed, but the phonology became the real basis of the grammar. After the Arabian conquest in the seventh century, the C. L. began to decline, and finally died out in the sixteenth century. In the form of the Bohairic dialect it has survived in the liturgy to the present day, though the epistle and gospel, after having been read in C., are also explained in Arabic. Arabic is now universally used.

Copts, native Christian descendants of the anc. Egyptians. The name is the Europeanised form of the Arabic *Kubt*, which probably derives from the Gk. *Αἰγύπτου* (Egyptians). A very large number live in Cairo and the other large tns. of N. Egypt, but they are also found throughout the country. They are, in general, the best educated section of the community. The hist. of the C. is intimately bound up with their faith. They claim to have received the gospel from St. Mark, first bishop of Alexandria, but they were easily corrupted and embraced the Monophysite heresy. This was condemned by the Council of Chalcedon in 431, and immediately a fierce struggle arose between the orthodox and the heterodox. The orthodox party, being supported from the imperial city of Rome, were at first in the ascendant, and the Monophysites did not scruple to call in the Muslims to their aid. Thus came the Moslem invasion in 640, and after a few years of Arabian rule the orthodox were almost entirely exterminated. A few still survive under the orthodox patriarch of Alexandria. The Coptic Christians in their turn were also cruelly oppressed by the Muslims, who forced them to submit to all kinds of degradation, and destroyed hundreds of their churches. Having been thus cut off for so many centuries from the influence of the rest of Christendom,

the Coptic Church has preserved its anct. liturgies and customs almost intact. It is therefore of great interest to students of liturgiology, and has received a good deal of attention in recent times. Except for their Monophysite heresy the C. hold the faith in exactly the same form as the Gks., with whom they share in holding the single procession of the Holy Spirit. Some few C. are Rom. Catholics and Protestants. At the end of 1937 the Abyssinian Coptic Church, which, since its foundation has been under the authority of the Coptic Church of Egypt



E.N.A.

COPTIC PEASANT

—whose patriarch nominated the archbishop and bishops of the Abyssinian Church from the Egyptian clergy, broke away from the mother church and claimed the status of an autocephalous body. The archbishop was deposed and the Abyssinian bishops elected one of their own members as the new *Abuna*.

Copula, term in logic which expresses the relation between the subject and predicate, and is always applied to the verb to be, whether expressed or implied. Example: 'Life is short,' here 'is' is the C., whilst in the sentence 'the child grows,' the C. is implied in the verb grows, viz. 'is growing.'

Copyhold, one of the anct. laws of land tenure. It existed in England until very recent years, although much modified in form. C. may be defined as holding at the will of the lord according to the custom of the manor, and dates back to feudal times. The lord of the manor bestowed a portion of his land on his labourers or

villains, who did him personal service in return for the land, which, however, often reverted back to the lord on the death of the tenant. Later on in hist. the tenant's right was observed, but many tiresome customs continued to survive, such as fines or heriots. C. is quite different from freehold in the manner in which it was conveyed. C. land was surrendered to the steward, who represented the lord of the manor; the steward then surrendered the C. to the new owner, and in each case the conveyance by surrender was made by a symbolical delivery. An Act passed in 1894 enabled (subject to the consent to the Board of Agriculture), C. to be converted into freehold. All C. land was enfranchised by the Law of Property Act, 1922, or in other words, C. tenure, together with customary freehold tenure, was abolished on the terms specified in the Act.

Copying, general name given to the many processes employed for reproducing, either in actual size or on an enlarged or reduced scale, a drawing, map, plan, document, or other object. In the case of drawings which are required to be the actual size of the original, the most convenient way is to trace them, which is done by placing a sheet of tracing paper over the drawing and going over the main lines with a pencil. A piece of paper coated with black lead or ruddle is then placed between the tracing and the sheet upon which the copy is required, and the traced lines gone over with a hard point, so transmitting faint lines on the paper, which serve as indications for filling in the rest of the drawing. If the copy is required of a different size from the original, the method of squares is usually employed. The original is covered with squares of uniform size by pencil lines, or placed under squared tracing paper, and a piece of paper prepared with a corresponding number of squares of proportionate size, according to the copy required. Each part of the drawing is then copied into its corresponding square on the copy. Another method is to take a photograph of the object to the exact size required. A later development of the photographic process is the minute reproduction on micro-film of letters and documents, etc. By this method extensive records can be retained in very small compass, reproduced in any enlarged size, or projected on a cinema screen. Engineers' drawings are frequently copied by the ferrocyanide process, which yields white lines upon a blue background and prevents any additional lines being subsequently added. The C. of handwritten letters is usually done by the ordinary C. press. The letter is written in C. ink and placed between sheets of damped paper to which the copy is transferred by pressure. For duplicating or manifold copies of forms or invoices, carbonised paper is placed between sheets of flimsy paper and transmits the impress of the pencil or typewriter type. Where many copies of a letter are required, the hectograph process is used. The letter is written in special ink and transferred by

pressure to a gelatine slab, whence it is retransferred to successive sheets of paper by gently pressing them upon the gelatine. Typewritten documents may be reproduced in large numbers by stencilling the document upon a wax sheet and then pressing a special kind of ink through the wax on to the blank sheet by means of an indiarubber roller, or by means of a duplicating machine. The lithographic process may be employed to obtain numerous copies of a letter in MS., and the photo-lithographic process for C. 'engineers' and other drawings in line. See LITHOGRAPHY.

Copyright means the sole right in the case of unpublished works to produce or reproduce a work or any substantial part of a work in any material form whatsoever, or to perform in public or give any acoustic representation of a work or any visual representation of it by means of any mechanical instrument; and in the case of a pub. work, the sole right to publish the work or any substantial part of it. C. also includes the sole right to produce, reproduce, perform, or publish any trans. of a particular work, to convert a dramatic work into a novel or other non-dramatic work, to convert a novel or other non-dramatic work or any artistic work into a dramatic work, to make any record, film, or other contrivance for mechanically performing or delivering any literary, dramatic, or musical work, and to authorise any of the above acts. The whole of the law of C. is now to be found in the Copyright Act, 1911, and the rules and orders in council made in pursuance of the Act, and as to musical C. also in the Musical Copyright Acts, 1902 and 1906. The law of C. as it existed before the Copyright Act, 1911, was unsystematic, inconsistent, and deficient. By the Act of 1911 all the previous statutes, extending back to 1734, were repealed and the whole law of C. consolidated and in many respects assimilated to principles familiar on the Continent. The two Musical Copyright Acts, 1902 and 1906 remain unrepealed. A further object of the Copyright Act, 1911 (which came into force on July 1, 1912), was to assimilate the law of C. throughout the empire, and to that end the Act provides that where any self-governing dominions accept its provisions C. relations with such dominions shall be in accordance with the system of the Berlin Convention. A considerable amount of new matter was added by the Act to the list of works entitled to C. protection, and the Act also profoundly modified the old conception of C. as a mere right of multiplying copies of an original work for the purpose of sale. C. formerly comprised only literary compositions and artistic works, the latter including engravings, paintings, photographs, designs, and sculpture. Progress in the art of mechanical representation or reproduction has led to the extension of C. protection to cinematograph and phonographic films and records respectively. Architectural works if original are also protected. Under the old law it was

necessary to register C. and it depended on both registration and pub. The infringement of an unpublished work merely gave a common law right to sue for damages. The new Act abolished registration in accordance with the recommendations of the Berlin Convention, with the result that an author is protected in respect of his unpublished works provided only he be a Brit. subject or resident at the time of making the work in such self-governing dominions of the empire as have adopted the Act, or a resident in any other part of the dominions of the empire. As respects a pub. work C. exists immediately on the first pub. within the Brit. dominions to which the Act extends. Pub. in relation to any work now means the issue of copies of the work to the public, either gratuitously or for payment. Pub. does not include the performance in public of a dramatic or musical work, the delivery in public of a lecture, the exhibition in public of an artistic work, or the construction of an architectural work of art, nor does the issue of photographs or engravings of works of sculpture and architectural works of art constitute pub. A dramatic or musical work is only pub. by being issued to the public in the shape of copies of the play or musical composition in question. The unauthorised performance of a play, musical piece, or any other work capable of representation necessarily amounts to an infringement of C. The importance of pub. since the passing of the Act of 1911 lies partly in the statutory classification and extension of the different modes in which C. arises, and partly in the computation of the term for which it subsists. Formerly the term was for the author's life and for seven years after his death, or for forty-two years following the date of first pub., whichever period was longer. Any extension of C. enjoyed by works then protected being in the interests of the author's estate. The term is now the life of the author and a period of fifty years after his death. In regard to all literary, artistic, dramatic, and musical works, C. subsists in the unpublished work from the date of the making or creation of the work, and from and after pub. the right continues for the life of the author and for a period of fifty years after his death; but after the expiration of twenty-five years (or thirty years in the case of a work in which C. subsists at the date of the passing of the Act) from the death of the author of a pub. work, it constitutes no infringement to reproduce the work, provided notice in writing be given and royalties in respect of all copies sold be paid to the owner of the C. The Act also stipulates that an author cannot assign the C. (otherwise than by will) or a period in excess of twenty-five years from the death of the author, after which the rights automatically revert to the estate of the author. Where the author dies without having pub. his work, C. subsists until pub. and for a term of fifty years after pub. C. in photographs subsists for fifty

years from the making of the original negative; and in the case of the works of joint authors C. subsists during the life of the author who first dies and for a term of fifty years after his death, or during the life of the author who dies last, whichever period is longer. Fair dealing with any work for the purposes of private study, research, or criticism does not constitute infringement of C. An author may also, after parting with his C., make use of any mould, sketch, or plan of his work, provided he does not repeat the main design of the work. Nor is it an infringement to recite in public any reasonable extract from any pub. work, or to publish in a newspaper a report of a lecture delivered in public, the pub. of which is not prohibited. It is an infringement of C. to permit for private gain a theatre or other place of entertainment to be used for the performance in public of a work without having obtained the consent of the owner of the C., unless the person so doing had no reasonable ground for suspecting that the performance would be an infringement. The law also makes provision for the issue of compulsory licences to reproduce works where the author or owner of the C. refuses to allow republication. The author is the first owner of the C. unless he has done the work on commission, in which case it belongs to the person who employed him. The civil remedies for infringement of C. are an action of damages, together with a claim for an account of the profits, and if a repetition is apprehended the owner may also ask for an injunction. An injunction will also be granted in the case of an unpublished work where the owner of the C. fears that his right is threatened, or that an unauthorised pub. is intended. Furthermore all copies printed and pub. must be delivered up to the owner. The owner may also take proceedings where necessary to get possession, not only of all infringing or pirated copies of his work, but also of all plates used or intended to be used for the production of such infringing copies. Under the Dramatic and Musical Performers' Protection Act, 1925, to make a record, directly or indirectly, from the performance of any dramatic or musical work without the written consent of the performers, or to sell or let for hire any record made in contravention of the Act or even to use for public performance any record so made is an infringement of C. In the First World War C. in works pub. or made in enemy ter. was vested in the public trustee (6 & 7 Geo. V., c. 32). In the Second World War the comptroller-general of patents, etc., was empowered to grant licences for the exercise of the Cs. owned by enemies or enemy subjects, and under the same Act (2 & 3 Geo. VI., c. 107) provision was made for the validity of licences already made with enemy owners of C. when the war broke out.

Registration at Stationers' Hall under the Act of 1842 terminated Dec. 1923. In 1924 the Stationers' Company estab. a

new register in which books and fine arts can be registered. A copy must be filed at Stationers' Hall and certified copies of the entries are issued; fees 5s. for a book, 2s. 6d. fine arts; certified copies in each case 5s. These copies are of use in giving evidence of work on a given date in case of infringement.

In U.S.A. C. law, registration is still necessary. The application for registration must specify whether the work in which C. is claimed is of the class of books, periodicals (including newspapers), dramatic or musical compositions, maps, works of art, or reproductions thereof, drawings, or plastic works of a scientific character, photographs, prints, and pictorial illustrations, motion pictures or motion picture photo-plays. Works not reasonably capable of falling under any of the above cannot be copyrighted. In 1928 C. legislation was enacted increasing the C. fee for registration of all pub. works to \$2, the fee being, previously, \$1; but, for an unpublished work, the registration fee is still \$1. Fees for most of the remaining C. services were also correspondingly increased. To secure registration: (1) The work must have been pub. in the U.S.A.; (2) two copies of the best ed. of the work must be sent to the C. Office, Library of Congress, Washington, promptly after pub. Books by Amer. authors must have been printed and bound in the U.S.A., but not books of foreign origin in other than the Eng. language. Books in Eng. pub. abroad prior to pub. in U.S.A. can secure *ad interim* C. for thirty days if a copy of the foreign ed. be deposited within thirty days of pub. abroad; which term will be extended to the full period when the ordinary conditions have been fulfilled. The original term of C. is twenty-eight years, but the author or his representative can, within one year prior to expiration, get a renewal for another twenty-eight years, or fifty-six years in all. C. may be assigned by any instrument in writing.

International Copyright.—For the mutual protection of works circulated in countries other than that in which they were first pub., certain nations signed a convention at Berne in 1887. The signatories were Great Britain, France, Germany, Belgium, Italy, Spain, Switzerland, Tunis, and Haiti, and subsequently Norway, Japan, and others joined the C. Union, but not the United States, Holland, or Russia. The basis of the Berne Convention was the reciprocal extension to foreign authors and publishers of similar rights to those enjoyed by native authors and publishers provided the formalities as to registration, etc., required by the country of first pub. were complied with. This convention was revised in 1896 and again at Berlin in 1908, and this, the so-called Berlin Convention, superseded the Berne Convention so far as those nations of the C. Union who ratified it are concerned. The signatories to the Berlin Convention include Great Britain, France, Germany, Spain, Denmark, Switzerland, Italy, Belgium, Holland and the Dutch colonies,

Norway, Sweden, Monaco, Japan, and Liberia. Great Britain signed and ratified a special convention at Vienna with Austria-Hungary.

Fresh modifications of the Berne Convention were made in its third revised form in 1948, because of the increasing importance of the broadcasting, television, film, and applied arts, and the convention now also protects the rights of authors in this domain. An author, for instance, now has the right during his lifetime to object to any distortion, mutilation, or other alteration of his works. He has also the exclusive right of authorising radio diffusion and communication to the public by loud-speaker or any other instrument of transmission. A new point has been introduced in the convention. It provides that if legislation in his country permits, as is the case in Belgium, the author shall enjoy the inalienable right to an interest in the sale of his work subsequent to its first disposal by him. Any dispute between countries concerning the interpretation or application of the convention is to be brought before the International Court of Justice.

The U.S.A. remains outside international conventions other than the Pan-Am. conventions made between them and other Amer. states, but power is vested in the president to give facilities by proclamation to foreigners to acquire C. in their works. Otherwise protection is gained by simultaneous pub. in the U.S.A. and the author's country. Similar observations apply in the case of Russia and China, who are also bound by no international code. Nor is Soviet Russia bound by any international agreement. Hence in the Second World War an Eng. author of international reputation was in an anomalous position. His country was at war with Germany, Italy, and Japan, and was allied with the U.S.A. and the U.S.S.R. Yet the C. of his works was protected in the three first-named countries (although of course he was unable to collect royalties), but in America and Soviet Russia it was difficult if not impossible to protect it; and the reason is that the latter nations did not subscribe to the international agreement.

The Copyright (Rome) Convention Order of 1933 extends the Copyright Act of 1911 to works by citizens of foreign countries in the C. Union on conditions set out in the order. See W. A. Copinger, *On the Law of Copyright*, 1870 (8th ed., 1948); T. Dawson, *The Law of the Press*, 1927; A. Plant, *Economic Aspects of Copyright in Books*, 1934; H. A. Howell, *The Copyright Law* (U.S.A.), 1942.

Coquelin, Benoît Constant (1841-1909), Fr. actor, destined to be a baker, but fortunately his histrionic talent was discovered, and he was allowed to enter the Conservatoire and studied under Régnier. Here he gained the second prize for comedy (1860), and in the same year played the part of the comic valet, Gros René, in Molière's *Dépit amoureux* at the Comédie Française. In 1864 he became *sociétaire* of that theatre, and for the twenty-two years following played with

conspicuous and well-deserved success the leading roles in over forty new plays. He excelled in the impersonation of characters with a humorous bias, and his originality was especially marked in such plays as de Banville's *Gringoire* (1867); Ferrier's *Tabarin*; Emile Augier's *Paul Forestier* (1871); Dumas's *L'Étrangère* (1876); Lonnou's *Jean Dacier* (1877); Pailleron's *Le Monde où l'on s'ennuie* (1881); and Erckmann and Chatrian's *Les Rantzau* (1884). As there had been some difficulty over his prov. and foreign tours, he gave up in 1886 his position at the Comédie Française and spent two years visiting with his company the chief cities of Europe and America. From 1890 to 1892 he was again associated with his old theatre, where he appeared as Labussière in Sardou's *Thermidor*, but in 1892 he again went on a foreign tour and never afterwards appeared at the Comédie. For two years from 1895 he acted at the Renaissance theatre in Paris, but in 1897 became director of the Porte-Saint-Martin. It was here that he created his most famous and probably his finest role, that of the inimitable Cyrano de Bergerac, in Rostand's play of that name (1897). Such was his success to this part that Rostand is said to have written *Chantecler* solely for C. But C. d. quite suddenly in the midst of the rehearsals for this new romantic drama, which was to have carried Paris by storm. In 1900 C. visited America once more, this time with Sarah Bernhardt, with whom he afterwards appeared in *L'Aiglon* at her theatre.

Coquelin, Ernest Alexandre Honoré (1848-1909), Fr. actor and author, brother of Benoît Constant C. Played at Odéon and the Variétés, but mainly associated with the Comédie Française, where his spirited and witty interpretation of a series of comic roles attracted large audiences. His humorous *Livre des contes* (1880) and *Fariboles* (1882), etc., afford delightful reading.

Coquerel, Athanase Josué (1820-75), Fr. Protestant divine, son of A. L. C. C. (*q.v.*), assisted in 1852 in the pub. of the first scientific theological review of his country (*Nouvelle Revue de théologie*). In such works as *Jean Calais et sa famille* (1857), *Précis de l'église réformée* (1862), etc., he gave expression to his enlightened ideas, whilst he wrote also on art in *Des Beaux-Arts en Italie* (1857).

Coquerel, Athanase Laurent Charles (1795-1868), Fr. Protestant divine, spent twelve years of his life in Holland (1818-1830). From 1831 to 1844 he ed. three papers, *Le Protestant*, *Le Libre Examén*, and *Le Lien*, and by his advocacy of a wider religious freedom excited the anger of the orthodox Calvinists. His contemporaries admired him chiefly for his inspired oratory; but he found time to write many works, including a *Réponse* to Strauss's *Life of Christ* (1841), and a treatise on the Reformed churches of France (1861).

Coques (or **Cocx**), **Gonzales** (1618-84), Flemish painter, was a pupil of Pieter Breughel (*q.v.*), and later of David Rycckaert the second. In 1671 he became

painter in ordinary to Count Monterey, governor-general of the Low Countries. Sometimes he depicted tavern and rustic scenes, but he excelled in portraiture, for which he took Van Dyck as his model. Rarely he painted life size, but most of his canvases are cabinet. His earliest portraits represent members of his own family; later he drew his friends, and soon men of note and rank came crowding to his studio, and the Archduke Leopold, the prince of Orange, and Charles I. of England vied with one another for the possession of his work. His 'Picnic' and 'Rest in the Fields' afford excellent illustrations of his high finish, rich tones, and mastery over the details of composition.



CORACLES IN WALES

These craft are used for fishing on the R. Towy, Carmarthenshire.

Coquette, used in a derogatory sense of a girl who uses every art to attract admiration and attention from the opposite sex, wishing thereby to please her vanity. The word is derived from the Fr. *coquer*, to strut like a cock, and hence, to swagger.

Coquimbo, prov. and tn. of Chile, S. America. The chief industry is mining copper, gold, and silver, and great iron-ore deposits exist (the combined output of iron-ore from C. and Atacama in 1947 was over 1,750,000 metric tons). The prov. is nearly entirely filled with branches of the Cordillera mts. Area 15,400 sq. m. Pop. 245,000. The tn. is one of the best ports on the Chilean coast with about 25,000 inhab. and exports of ores and hides. There is a naval wireless station on the coast.

Coquito, or *Jubæa spectabilis*, is a palm which constitutes a genus in itself. The

sap is evaporated by the natives of Chile to make it yield a palm-honey.

Cora, see *Corai*.

Coracle, or **Curraich** (Lat. *curruca*, Welsh *coriegl*), skiff with a slight wooden frame, covered over with hides, and made watertight by a coating of tar and pitch. Caesar describes the Cs. in use among the Britons of his day, and hist. speaks of a seven days' voyage by missionaries in 878 from Ireland to Cornwall in a C. made of two and a half skins. Cs. were oval in shape, about 3 ft. by 4 ft. in size, there being room for one person only. The rower propelled himself by a paddle. If two men went fishing in Cs., they held the net between them, hauling it up after a catch till their boats touched and the fish could in this way be secured. This kind of canoe is still used on the R. Severn and R. Towy, and in Clare. Cs. have disappeared from the Usk and the Wye, and on the Taff the last was seen in 1850. In Ireland and Scotland Cs. are no longer seen. Light boats, very similar, were built for crossing the lakes on the way to Klondike after the passage of Chilkoo Pass, Alaska.

Caracoid Process, beak-like projection in the upper part of the scapula, or shoulder blade. It may be felt by pressing the finger in the depression just below the collar-bone, two-thirds of its length outwards.

Coral, the solid support or hard skeleton of various marine organisms. It is secreted from sea-water, and is chiefly carbonate of lime. The Anthozoan polyps are the prin. source of the C. reefs of the world. The skeletons of many other organisms contribute to C. masses, such as Polyzoa and Mollusca, but these cannot be properly included in the term C. The reef-building Cs. are the Madrepora and Micandrina, confined to waters in which the temp. does not fall below 68° F. even in the coldest months. C. reefs are abundant in the W. Indies, on the coast of Brazil, and in the Central Pacific. The great C. reef regions are within the limits of the trade-winds and monsoons, with the exception of the Ellice and Marshall Is. According to Darwin, atolls were supposed to have been formed on submarine banks over a subsiding sea bottom, and this subsidence theory accounts for C. reefs over 100 ft. in thickness. Apart from that we really have few data to support the Darwinian theory of subsidence. Cs. may be roughly classed under two heads—horny, and lime or stone Cs. The former consist chiefly of a horny secretion from the polyps, while the stone C. consists almost entirely of lime firmly joined in a solid mass. All possible gradations, however, can be found, so that it is impossible to draw a sharp line between the two groups, the central point of the Cs. forming the family. Coralline C. is quite solid, and is produced in concentric layers by the living gelatinous substance enveloping it, and from which the polyps project. When the C. is taken out of water, the gelatinous living part soon decomposes and disappears. Beyond their general utility

and value as sources of lime, Cs. are not of any especial industrial importance with the exception of the red C. (*Corallium rubrum*) of the Mediterranean Sea. This C. is susceptible of a high polish, and is largely used for ornamental purposes. It has a shrub-like, branching form, and grows about a foot high, being as thick as the little finger of the human hand. Extensive fisheries are carried on in the Mediterranean, and it is exported to India. Red C. is also obtained in the Red Sea and Persian Gulf. It also occurs off the N.W. coast of Africa. Black C. is still more highly prized, and has a wide distribution, growing to a considerable height and thickness in the tropical waters of the Great Barrier Reef of Australia. It is also found in the Persian Gulf. From remote times, C. has been highly prized



CORAL

for personal ornaments and decorative purposes generally. In India, a great trade was carried on from the beginning of the Christian era, and it was esteemed as a substance endowed with sacred properties. A belief in its potency as a charm continued to be entertained throughout medieval times, and among the Romans, branches of C. were hung round the children's necks to preserve them from danger, and many medicinal virtues were attributed to it. In Italy, at the present day, C. is worn as a preservative from the evil eye. The range of value of C. varies according to colour and size, and its price is considerably affected by the fluctuations of fashion. Rose-pink C. is the most valuable. Good coloured C. commands high prices in China, where it is in great requisition for the button of office worn by the mandarins. It is also a favourite ornamental substance with the negroes of Central Africa and America.

Coral Fishery has, since the beginning of the Christian era, been a lucrative trade. The finest fisheries are along the N. coast of Africa, in Tunisia, Algeria, and Morocco. Before the sixteenth century these C. reefs were controlled by the It.

republics. For a time the Tunisian reefs fell into the hands of Spain, but the monopoly of trading was ultimately secured by France, who held it till 1793, when the trade was thrown open to other nations. For a short period the control lay in the hands of Great Britain, but finally was regained by France. Boats not bearing the Fr. republican flag have to pay heavy dues to fish. C. is only fished once in ten years, as it requires that time to develop. The boats vary in size from 3 to 14 tons. The raw material is made up chiefly in It. cities. There are also valuable C. reefs off the coast of Italy, Catalonia, and Provence.

Coral Islands and Reefs are low is. or reefs formed from the petrified calcareous skeletons of C. polyp. They may best be subdivided into three classes, one of which often develops from the other. *Fringing reefs* are found extending outwards from the shore of an is. from which they are not separated by a channel. *Barrier reefs*, on the other hand, are found at some distance from the shore along which they extend at a more or less uniform distance. The greater part of such a reef is submerged, its place being marked by the line of breakers, but in places it rises above the sea level, and here sparse vegetation is found. The channels which lie between reef and shore are of the greatest value as providing roadsteads for shipping. The greatest of barrier reefs is the Great Australian Barrier Reef off the coast of Queensland which stretches intermittently for over 1000 m. *Atolls* are small is. roughly circular in shape and enclosing a lagoon. These typical C. is. vary greatly in size, and have sometimes a length of over 70 m. Beneath the lagoon, to which there is usually access through a gap in the encircling ring, is a C. floor. The depths of these lagoons vary from a few feet to about 300 and frequently the lagoon forms a safe harbour for ships. C. polypi flourish most in the W. Pacific and in the shallow seas near Australia, Mexico, the W. Indies, and New Guinea. The reefs and is. are composed principally of rock which bears but little superficial resemblance to the organic substance which we recognise as C. The foundation is one of white limestone, which often further assumes a crystalline form under the influence of chemicals present in the salt water. To this are added C. fragments washed off from another part of the reef and rendered shapeless by pressure. Sand and the skeletons of other molluscs, radiates, etc., form the rest of the mass, and on this the living C. builds. The growth of the C. polyp is restricted by many circumstances. Warm salt water is required, free from cold currents, and with a temp. which does not fall below 68° F., and the polyp must also have abundance of food if it is to develop properly. The water must be clear, not muddy, and the deposit on which the polyp lives must be near the surface of the water and yet not below the level of the lowest neap tides. The rate of growth varies with the species and the conditions;

some species build at the rate of 1 in. per year, others at the rate of 3 in. per year, and still higher rates of progress have been chronicled in certain parts. Since the growth of C. is restricted by so many conditions, the circumstances and procedure by which is, and reefs have come to their present state have been much discussed. The first serious attempt to provide a theory was made by Adelbert von Chamisso (q.v.) who made a voyage through the South Seas from 1815 to 1818. He conjectured that the C. structures were built up in places where the sea bottom came near to the surface—in short on submarine mts. Growth took place on the sloping sides of the mts., and continued in an outward direction so that the atoll with its lagoon was the result. This conjecture, however, was hardly a happy one, since it is somewhat difficult to imagine a sufficient profusion of submarine mts. to account for the various C. islets and reefs scattered throughout the tropical and semi-tropical seas. The subject next engaged Darwin's attention during the celebrated voyage of the *Beagle* (1831-36). He propounded the view that the construction of the reefs had commenced when the land was near the surface of the sea, and that subsidence had then followed as the growth proceeded. When first built, therefore, every C. structure would be a fringing reef, when the land actually rose above the surface. As the land sank, construction would continue on the old foundations and a barrier reef would result. In time the land would entirely disappear, and the atoll, the final form, would be complete. Much evidence was brought to confirm this theory, and for long it was the generally accepted one, being supported by Profs. Dana and Jukes among others. The researches, however, of Prof. Semper, Agassiz, and others among the Atlantic reefs of Florida, etc., have rendered it unsupportable as a universal hypothesis. The condition of the C. structures here must be attributed solely to the natural growth of the polypi and the action of the sea, and Semper's researches among the Pelew Is. supported Chamisso's view in this case at all events. Darwin, however, has not precluded the possibility of some reefs arising in this way. In 1880 Sir John Murray, when present with the *Challenger* expedition, gave much attention to the subject of C. growths, and pub. a memoir which shows a partial return to Chamisso's position. Direct opposition to Darwin is shown by the fact that he considers the atoll to be the first stage in the growth and the fringing reefs to be the final one. He meets the objection that so many mts. are unlikely to occur, by saying that it is unnecessary to suppose that these were at first of anything like equal level. In some parts, land originally above sea level would have been reduced by the action of the sea, while in others land would have been raised by marine deposits. He also refines on Chamisso's explanation in other ways. He traces the stronger growth on the outside to the

additional amount of food which would be obtained there, and explains the lagoon by the statement that the dead C. on the inside would be removed by the solvent action of the salt water. The investigations of Dr. Guppy among the Solomon Is. (1887) have done much to support Murray's theory, but it is now generally felt that both this and the Darwinian hypothesis are true on various occasions. See C. R. Darwin, *Structure and Distribution of Coral Islands*, 1842, 1883; J. D. Dana, *Coral and Coral Islands*, 1872, 1890; Sir J. Murray, 'On the Structure and Origin of Coral Reefs and Islands' in *Proceedings of the Royal Society of Edinburgh*, 1879-80; W. Saville Kent, *Great Barrier Reef of Australia*, 1893; J. S. Gardiner, *Coral Reefs and Atolls*, 1831; B. Mallinowski, *Coral Gardens and their Magic*, 1938; R. Gibbins, *Over the Reefs*, 1948. See also ATOLL.

Coral-flower, Coral-tree, or Erythrina Corallodendron, beautiful species of Leguminosae allied to the corkcumb. The plant is a W. Indian tree bearing long racemes of dark red papilionaceous flowers.

Corallian (Fr. *Corallien*), in geology, the name of one of the divs. of the Jurassic rocks. The rocks forming this div. are mainly calcareous grits and limestones with rubbly coral rock.

Coralline, popular name applied to *Corallina*, genus of calcareous algae. *C. officinalis* is a beautiful seaweed of red colour, but others are often purple.

Coralline Crag, crag of from 40 to 60 ft. thick exposed at various localities in Suffolk, belonging to the Pliocene period. The crag is formed of friable calcareous clay, and contains an abundance of shells and corallines, hence its name.

Coral Sea, stretches between the New Hebrides to the E and Australia to the W., being part of the Pacific. The coral reefs give the sea its name. The C. S. was the scene of an Amer. naval and air victory over the Jap. Navy in May 1942. An exceptionally large Jap. naval force, which had been concentrated at the Louisiade Is. in the C. S., was attacked by an Amer. task force of ships and aircraft on May 4, and in an engagement lasting sev. days the Jap. Navy lost a number of battleships (estimated at over half a dozen), while inflicting only slight loss on the Amer. forces. For details see NAVAL OPERATIONS IN SECOND WORLD WAR.

Coral snakes, relations of the cobra in the family Colubridae. *Elaaps corallinus* is a typical specimen, it occurs in the tropical forests of S. America, and its small body, less than 3 ft. in length, is ringed with coral-red. It is highly poisonous, but has so small a mouth that it need not be dreaded by man.

Coram, Thomas (1668-1751). Eng. philanthropist, b. at Lyme Regis. A man of varied ventures by sea and land; settled in London, where, moved by the sufferings of the poor, he estab. the Foundling Hospital. In this work he was supported by Hogarth; but his charity so impoverished him that he ended his

days on a small annuity raised by subscription.

Coran, see **KORAN**.

Cor Anglais, or **English Horn**, wind instrument of the reed species, belonging to the oboe family, of which it is the tenor. It is related to the oboe as the basset horn is to the clarinet. A C. A. differs from an oboe in having a larger globular bell at the bottom, and a wider conical bore to the wooden tube. It has a compass of two octaves and a fifth, and possesses a piercing tone, its quality, however, being more mellow and mournful than that of the oboe. In his It. version of *Alceste*, Gluck wrote parts for C. A. (1767). Other examples are the shepherd's piping in *Tristan and Isolde*, and the faun's in *L'Après-midi d'un faune*. *Anglais* probably is a corruption of *angle*, many of the earlier instruments being crooked or bent.



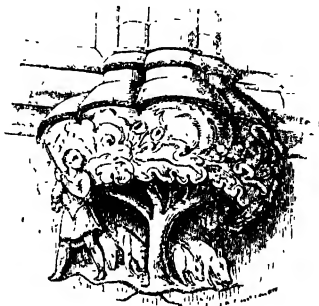
COR
ANGLAIS

Corbeil, tn in the dept. of Seine-et-Oise, France, on the R. Seine, 19 m. S. of Paris by rail. It has important mills, printing works, and agric. trade. Pop. 11,500.

Corbel, in architecture, is a projected piece of stone, wood, or iron placed so as to support a pillar or a weight of materials. In Norman architecture the cornice is supported on C. stones, the ends of which are carved; and in Old Eng. castles the main beams of the floors were frequently carried on large C. stones, as at Porchester Castle. Gradually figures, chiefly the heads of men and animals, were employed for ornamentation. The term bracket is sometimes used for a C., but bracket is better applied as synonymous with cantilever.

Corbet, Richard (1582-1635), poet and bishop, was the son of a gardener at Ewell, Surrey, and was educated at Westminster School and at Christ Church, Oxford, of which he became dean. He was afterwards appointed chaplain to James I., bishop of Oxford, and bishop of Norwich successively. His only pub. writings were *Certain Elegant Poems* (1647), and *Poetica Stromata* (1648), the latter ed. with a life of the author by Octavius Gilchrist (1807).

Corbett, Harvey Wiley, Amer. architect; b. 1873, at San Francisco; son of Samuel James C., M.D., B.Sc., univ. of California, 1895; graduated Ecole des Beaux-Arts, Paris, 1900. Member of the firm of Helmle & C., New York. Lecturer in architecture, Columbia Univ. Member of advisory board of School of Architecture, Princeton. Designed and built Maryland Institute, Brooklyn Masonic Temple, Springfield (Massachusetts) Municipal Group, New York School of Applied Design for Women, Bush Terminal Office Building (New York), George Washington Masonic National Memorial (Alexandria, Virginia), Bush House (London, England), also King's Co. Hospital Buildings, Holy Innocents' Church, and St. Francis Xavier's School—all of Brooklyn.



CORBEL

Merton College Chapel, Oxford.

Corbett, James John (1866-1933), Amer. prize-fighter, b. San Francisco, California, U.S.A. He began work as a book-keeper in a local bank. After winning in some amateur boxing matches, he became a professional in 1881. In 1899 he knocked out the veteran Joe Choynski in twenty-eight rounds. He defeated Jake Kilrain in 1890 and fought a drawn battle with the famous negro boxer Peter Jackson. By this time he had earned the right to a contest with John L. Sullivan, who for many years had been world's champion heavy-weight pugilist. So firmly was Sullivan estab. in the esteem of the Amer. public that it was not thought that C. had any chance of winning. However, he defeated Sullivan in 1892 in New Orleans; and soon became known by the sobriquet Gentleman Jim. He successfully defended his title against Charlie Mitchell, the Brit. heavy-weight champion, but was knocked out by Bob Fitzsimmons at Carson, Nevada, 1897, by the blow which became famous as the solar plexus punch. His last fight was in 1903, when he was knocked out by Jim Jeffries. C. then went on the vaudeville stage and was a big success. He wrote his reminiscences under the title *The Roar of the Crowd* (1925).

Corbett, Sir Julian Stafford (1854-1922),

director of the historical section, Committee of Imperial Defence. Educated at Marlborough, and at Trinity College, Cambridge. Ford lecturer in hist. to Naval War College. Before the First World War he pub. a number of works on naval hist.; and, after it, contributed *Naval Operations* to its *Official History* (1920).

Corbetta, com. 23 m. N.N.W. of Pavia, in the prov. of Milan, Lombardy, Italy. Pop. 8000.

Corbie, tn. on the Somme, in the dept. of Somme, France, and in the arron. of Amiens. Once it was famous for its Benedictine abbey; now it is visited for its mineral waters, and has textile industries. Pop. less than 4800.

Corbie Steps, or **Crow Steps**, Scottish expression derived, no doubt, from corbel, the similarity of this word to corbie, Scottish for crow, accounting for the alternative name. From the fourteenth to the seventeenth century gables in Scotland were invariably finished by stepped slopes, called C. S. It was customary to arrange steps for the passage from one side of the roof to the other, hence arose the fashion of cutting the parapet alongside into steps.

Corbridge, par. on the Tyne in Northumberland, England, 3½ m. to the E. of Hexham. In the vicinity are coal mines, but the interest of the place to-day is mainly historic. The Rom. station known as *Corstopitum*, which served as an important basis for the military operations of Antoninus Pius, lay half a mile to the W. Ruins of two great granaries facing what must have been a broad highway were excavated in 1907. These had lain embedded in the earth since the fifth century, when the site was abandoned. Pop. 2500.

Corbulo, **Gnaeus Domitius**, Rom. general who lived during the reigns of Claudius and Nero. His popularity with the soldiers and notable conquests aroused first the envy of Claudius, who recalled him in the midst of his victories in Germany, and afterwards of Nero. From A.D. 54 he waged successful warfare against the Parthians, who were continually crossing the E. frontiers, till Nero in 67 sent for him to Greece. C. fell on his sword rather than give himself up to the emperor.

Corbusier, Le, see LE CORBUSIER.

Corby, tn. in Northamptonshire which has grown rapidly from a small vil. to its present size since 1930. It owes its importance to the iron and steel foundries based on locally found ironstone. The major expansion has taken place since 1933 and is due to the estab. of Messrs. *Stewarts & Lloyds Ltd.* steelworks, which employ about 6000 hands. The Brit. Oxygen Co. Ltd. has a research plant here. The anct. thirteenth-century church stands in the old vil. to the E., and contains a founder's tomb and a triple sedilia. There are a number of fine seventeenth-century stone houses. Pop. 14,000.

Coreyra, anct. name of Corfu (q.v.).

Coreyra Nigra, see CORZOLA.

Cord, derived from the Gk. through the Lat. *chorda*, the string of a musical instrument, now denotes a piece of thick string composed of sev. woven or twisted strands. In the seventeenth century in England, and in America, a cord of wood was cut timber, usually for fuel, measuring 8 ft. long by 4 ft. broad, and 4 ft. high.

Corday d'Armas, **Marie Anne Charlotte**, commonly called **Charlotte Corday** (1768-1793), b. at St. Saturnin, near Sées in Normandy, was of noble birth, and among her ancestors was Pierre Corneille. At first a strong supporter of the Fr. Revolution, she afterwards thought that it had gone too far in its atrocities, and on the overthrow and proscription of the Girondists (May 1793) she determined to support the opposing side. She chose Marat as her first victim, and, after two unsuccessful attempts, she gained admission to him under pretence of communicating news of the Girondists at Caen, and stabbed him in his bath, where he d. She was arrested, brought before the revolutionary tribunal, and condemned to be guillotined. Her execution took place on July 17, 1793. See A. de Lamartine, *Histoire des Girondins*, 1847; C. Vatel, *Corday et les Girondins*, 1872; and A. Dobson, *Four Frenchwomen*, 1890.

Cordele, tn. in Georgia, U.S.A. Pop. 7900.

Cordeliers, branch of the Franciscan or Grey Friars, so named from wearing a knotted cord for a girdle. Mentioned in Chaucer's *Trojan of the Rose* (line 7459 in Globe ed.). The name was also applied to the members of a club founded in Paris in 1790 in the former convent of the C. during the Fr. Revolution, the chief leaders of which were Marat, Danton, Hébert, and Camille Desmoulins. It fell in importance after the execution of Danton, and was ordered to be discontinued by the Convention of 1795.

Cordials are weak solutions of alcohol, supposed to have considerable medicinal value. Usually they are sweetened with syrups or cane sugar, and mixed with fruit essences or plant or essential oils to give a flavour. Caramel or burnt sugar is often used to colour C.

Cordier, **Henry Joseph Charles** (1827-1905), Fr. sculptor, was a pupil of Faginet and Rude. From the first he showed an alert interest in anthropology. The *Jardin des Plantes*, Paris, possesses his twelve busts of Algerians. Other of his notable works are statues of Arabian women and fellahs in onyx and bronze, polychromatic busts of a negro of Timbuctoo and an African Venus, and a statue of a young sculptor (Gk.) of the is. of Tinos.

Cordier, or **Corderius**, **Mathurin** (c. 1480-1564), Fr. schoolmaster, was for some time a teacher at the college of Navarre, Paris, where Calvin was his pupil, but taught for most of his life at Geneva, having embraced Calvin's religious views. He had a special gift for instructing children, and his graduated dialogues for beginners in Lat., entitled *Colloquiorum scholasticorum libri quatuor*, were still used in the schoolroom three centuries after

his death. In his *De corrupti sermonis emendatione* he attacked what was called the *Latin de cuisine*, whilst a Lat. grammar and *Miroir de la jeunesse pour la former à bonnes mœurs et à civilité de vie* were both written for young people.

Cordilleras (Sp., chains), name applied to the mt. systems of N., S., and central America; the C. of N. America being the Rocky Mts., and those of S. America the Andes.

Primero, Segundo, etc. (First, Second, etc.), which flow from the W., succeed in reaching the E. limits. The prin. products are wheat, maize, wood, linseed, hay, flour, cattle, hides, and marble. Pop. (1947) 1,455,000. 2. Cap. of the above prov. and the third largest city of the Argentine Republic, with (1945) 287,000 people. Some 435 m. N.W. of Buenos Aires. Founded in 1583, its early growth was due to the driving of cattle



INTERIOR OF THE MOSQUE, CORDOVA

Cordite, smokeless explosive used in the Brit. and other armies. It was introduced by Sir Frederick Abel; Nobel, the Swedish chemist, claimed that his patents covered the substance, but the claim was disallowed after a series of lawsuits in 1894-95. The explosive as prepared in 1891 consisted of 58 per cent nitroglycerine, 37 per cent gun-cotton, and 5 per cent mineral jelly or vaseline. This substance is now known as Mark I., but has since been superseded by C.M.D., which is composed of 30 per cent nitroglycerine, 65 per cent gun-cotton, and 5 per cent mineral jelly. C. has good explosive properties, but is particularly safe to handle. If ignited in the open air it burns slowly; it may be subjected to considerable shock without detonating, e.g. bullets fired through packages of C. fail to explode it. It is waterproof and is unaffected by ordinary climatic changes; it is very stable and remains unaltered for a considerable length of time, even when kept in contact with metallic envelopes. These properties make it a valuable propellant for warlike purposes, as there are few dangers connected with transport, storage, and manipulation. C.M.D. explodes with more regular pressure and with generation of gases of lower temp. than Mark I., thus causing less deterioration to rifling, etc.

Cordoba, Alaska, see **CORDOVA**.

Córdoba: 1. Central prov. of the Argentine Republic, having an area of 65,000 sq. m., consisting mostly of pampa land. In the W. the Sierras de C. and de Pocho rise sometimes to over 6600 ft., but the rest of the state is a plateau sloping down toward the E. Few of the five riva.,

from the Argentine pastures to the mining centres of the Andes. The local industries include the manuf. of shoes, soap, candles, carriages, and furniture. There are also flour mills, foundries, marble works, tanneries, and paper mills. C. is a centre of culture. There is an old and important univ., and the national observatory is one of sev. unusually fine buildings, including the National Academy of Sciences and the National Meteorological Bureau; there is a cathedral and many grey churches and anct. houses. 3. Tn., 3045 ft. above the sea, in a fertile valley with coffee plantations, 60 m. W.S.W. of Vera Cruz, in Mexico. Pop. 16,000.

Córdoba, Spain, see **CORDOVA**.

Cordon, line of military posts or sentries placed around a dist. or tn. to prevent any communication between it and the country beyond. When it is used to prevent a disease from spreading it is called a *C. sanitaire*.

Cordon Bleu, originally referred to the blue ribbon of the knight's grand cross of the order of the Holy Spirit, the first order of the Bourbon kings. To-day the term is humorously applied to good cooks. Properly it refers only to women cooks.

Cordova, or Córdoba: 1. Prov. of Andalusia, Spain, which after A.D. 756 became an independent Moorish kingdom. The plains produce fruit, wine, olives, grain; the slopes of the Sierra Morena pasture cattle and horses. Lead, copper, and coal are mined. The area is 5300 sq. m., the pop. (1945) 798,000. 2. Cap. of the above prov., on the Guadalquivir, is the city of the wonderful Moorish mosque built from 785 to 990, and taken from them by the Spaniards at the

point of the sword in 1236. It embodied all the styles of Moorish architecture in one noble composition (Calvert). It was 742 ft. in length, and 472 ft. in width, and had forty-eight watch-towers; it is now the largest of Christian temples next to St. Peter's. The pulpit, composed of 35,000 pieces of wood, was seven years in the making by eight artists. The Moorish bridge and water-mills, ruined walls, etc., still give an oriental air to the confused mass of small white houses which was so associated with Cordovan (*q.v.*) leather as to give its name to cordwainer (*q.v.*), the anct. Eng. word for shoemaker. Pop. 177,400. 3. Tn. in Alaska, U.S.A., the terminus of the Copper R., and N.W. railway, and the outlet for the Kennicott mines. Pop. 1000.

Cordovan, or Cordwain, very flexible kind of leather made from goatskin. Originated from Cordova in Spain. Dyed and finished in brilliant colours, it was used for soldiers' and courtiers' boots from the fifteenth century. There was a black variety made from horsehides which was in vogue with civilians in the same period.

Corduroy, cotton material made like a ribbed velvet. The fabric has cords running the length of the cloth, the cords or ribs being produced by a weft pile. It is generally all cotton, but may be made with a rayon pile for women's dress materials. A coarse heavy make is used for workmen's suits, for riding breeches, or for upholstery.

Corduroy Road, term used to designate a road which is formed of tree trunks or logs laid side by side in a transverse direction. Such roads are used chiefly in America, when a marshy piece of land has to be negotiated as a more or less temporary expedient. The origin of the term is the similarity of design of such a road to a piece of corduroy, in which the ribs run in similar fashion.

Cordwainer originally, in Sp., It., and O.F., signified a maker of, or dealer in, Cordovan leather, and thence in later Fr., a shoemaker. It is now obsolete, but survives as the name of the trade-guild or company of shoemakers; it is also used by trade unions to include all branches of the trade.

Core, internal mould which forms the interior of a cylinder, tube, pipe, or other hollow casting. The C. is made in a C-box, and has projecting portions known as C-prints, which rest in the prints of the mould. The model from which the object is cast is solid, and makes an impression, partly in the cope and partly in the drag. When the pattern is removed the C. is laid in its place, the projecting portions resting in the recesses made by the pattern prints. When the metal has been poured around the space and then cooled, the C. is broken out, leaving the casting hollow. To prevent the formation of blow-holes, the material of the C. must be porous, and vents should be provided to allow gases to escape from the interior of the mould.

Corea, see KOREA.

Coregonus, or Whitefish, genus of fishes in the Salmonidae, and usually to

be found represented in lakes. Their scales are large and silvery, the teeth are either minute or absent, and the height or front of the first dorsal is greater than its breadth. *C. oxyrinchus*, the houting, is a native of N. Europe; *C. pollan* is the pollan found in Irish lochs; *C. clupeoides* (or *C. lacepedii*) is the powan; the Welsh gwyniad (or schilly of Ullswater) is *C. Pennantii* (or *C. fera*); the powan and gwyniad are both found in the Eng. lakes, in Loch Lomond, and in lakes in Wales. The vendace (*C. vandesius*) is found in the lake of Lochmaben in Scotland, and *C. gracilis* is found in Derwentwater.

Corella, tn. of Spain in the prov. of Navarre, situated 49 m. S.S.W. of Pamplona. Pop. 7000.

Corelli, Arcangelo (1653-1713), violinist and musical composer, b. at Fusignano. Went to Germany in 1680, but returned to Rome in 1682, where he met Handel. Living at a time when the viol was yielding to the violin, C. was the first outstanding violinist and composer of music for that instrument as well as teacher. He is credited with having laid the foundation of the modern art of instrumental composition. His *Concerti Grossi*, or five books of twelve concertos each (short suites of non-dance pieces), are for two violins, cello, and harpsichord. They were only pub. shortly before his death.

Corelli, Marie (1864-1924), Eng. novelist, was the illegitimate daughter of an It. father and a Scottish mother. The first years of her childhood were spent in the family of a Marylebone labourer, named Cody. Later, she was adopted by the journalist Charles Mackay; at his death his son Eric was constituted her guardian, and he sent her to a Fr. convent to be educated. Her education was framed with a view to a musical career, but on her return home she wrote in 1886 a romantic story entitled *The Romance of Two Worlds*. This was so successful that the idea of a musical career was abandoned for the writing of novels, all of which were immensely popular. No writer of her day (unless it was her sparring partner, Hall Caine) had a larger number of readers. The critics invariably fell foul of her work, and for many years no copies of her novels were sent for review. The reason of her success lay not in the excellence of her work, but in the fact that it met so exactly the popular taste. Her novels had a distinct flavour of plot; and, although she usually (perhaps always) failed to display much comprehension of the affairs of this life, she wrote about everything with a cocksureness and an emphasis that were enough to convince her admirers that she had probed the subject to the bottom. Her chief novels are *Vendetta* (1886); *Thelma* (1887); *Ardath* (1889); *The Soul of Lilith* (1892); *Barabbas* (1893); *The Sorrows of Satan* (1895); *The Mighty Atom* (1896); *'Temporal Power'* (1902); *Holy Orders* (1908); *The Life Everlasting* (1911); *Rays of the Sea* (1917); *The Secret Power* (1921); *Poems* (ed. B. Vyver) (1925). See K. Carr, *Miss Marie Corelli*, 1901; B. Vyver,

Memoirs of Marie Corelli, 1930. Biography by G. Bullock, 1940.

Corentyne, or **Corentyn**, riv. of S. America, forming the frontier of Brit. and Dutch Guiana. It rises in the Acaari Mts., and has a length of 450 m. The C. is navigable for some distance from the mouth, but great cataracts in about 4° 20' N. lat. and sev. others higher up interrupt the navigation. *See also under* DUTCH GUIANA.

Corenzio, **Belisario** (1558 or 1560-1643), Gk. artist, b. in the prov. of Achala. Became a pupil of Tintoretto at Venice. Settled at Naples, where he painted pictures in fresco for the churches and was more successful in his frescoes than in oil paintings.

Coreopsis (Gk. *κόρη*, a bug; *opsis*, resemblance), genus of plants of the order Compositae. It takes its name from the fact that the seeds are generally awned and slightly winged and look remarkably like an insect. There are many species found in the U.S.A., Mexico, the Sandwich Is., and S. Africa. The flowers are cultivated for decoration, for they are very gorgeous and beautiful.

Co-respondent, denotes either generally a co-defendant with another or other parties to an appeal; or specially in the divorce court, any person cited in a suit for divorce or judicial separation, and charged with adultery with the spouse (respondent) against whom the petition is brought.

Corf, name formerly given in mining to a large and strong basket used in carrying ore, or coal, from the working-place to the surface. Tubs made of wood and iron are now used for this purpose; they are still sometimes termed corves. In fishing, a corf is the name given to a cage in which fish, particularly crabs, lobsters, etc., are kept alive in the water. Such corves are made from a large basket, or a box with holes in it.

Corfe Castle, vil. and par. in Dorsetshire, England, situated in the E. div. of the Isle of Purbeck, 6½ m. S.W. of Poole, and 21 m. E.S.E. of Dorchester. C. C. itself is situated on a high ridge, and is separated from the vil. by a ravine over which a bridge has been built. The castle dates from the eleventh century, though for a long time ascribed to Edgar; it was here on the site of the castle that King Edward the Martyr was murdered in 978 at the instance of his stepmother Elfrida. Many times the castle has been besieged; it was captured by the earl of Devonshire in Stephen's reign, and was twice besieged by the forces of the Parliament during the Civil war, being demolished after its capture in 1645. The prin. trade of the vil. is in fireclay and stone. Pop. 1400.

Corfu: 1. The largest of the Ionian Is., and of which the anct. name was Corcyra. About 700 B.C. it was colonised by the Corinthians, and soon estab. an extensive commerce. Rivalry soon broke out between Corcyra and Corinth, and in 664 B.C. a battle was fought—the most anct. sea-fight on record—between the two cities. In 433 B.C. it allied with Athens

and so caused the Peloponnesian war. Civil dissensions caused a decline in its power, and it was taken by the Romans in 229 B.C. In the Middle Ages it was taken by the Venetians, who held it until 1797, when it was ceded to France. Russia and Turkey captured it in 1799, but gave it back to France in 1807. It was in the hands of the Brit. from 1815 to 1863, when it was incorporated with Greece. The surface of the is. is mountainous: the climate in summer is hot and dry, and in the winter rainy. C., the first sight of which delights and surprises the traveller, has an area of 227 sq. m. and a pop. of about 105,000. The olive trees, planted by the Venetians, cover its rocky hills and valleys with a mantle of green, and fill its storehouses with oil. On all sides there is luxurious vegetation, pears, figs, pomegranates, and flowers. The best Gk. musicians come from C. The women balance extraordinary weights upon their heads gracefully. The excellent roads are a relic of the Eng. occupation. During the First World War C. played a useful part as a resting spot for the Serbian army, after its terrible retreat through Albania, and to-day more than 25,000 Serbians lie in C., the victims of typhus and cholera. 2. C., the chief tn. of the is., is famous for its harbour; the tn. has little other attraction besides a few picturesque streets. The Gk. postage stamps are usually printed here, and paper is made. On Aug. 27, 1923, the It. delegate on the Albanian Boundary Commission was found murdered on Gk. ter., and the It. dictator sent a fleet to C., which bombarded the dilapidated Venetian forts, and killed sixteen refugees and orphans. The Brit. Police Mission estab. a police school at C., and up to the end of 1926, 2998 cadets had been trained there. C. being somewhat isolated, has a local newspaper press. It., which was once universal, is no longer generally spoken. C. has no railway. The pop. is 34,000.

Corgi, *see* WELSH CORGI.

Cori (formerly **Corà**), tn. of Italy in the prov. of Rome, situated at the foot of Monte Lepini, 23 m. S. by E. of Tivoli. It was formerly a tn. of the Voisci, and important ruins of temples, etc., have been discovered, and remains of walls. Considerable damage was sustained by C. during the Second World War. Of the church of S. Maria della Trinità only the campanile survives; S. Pietro was a complete ruin and S. Salvatore was damaged throughout, and the roof of the high altar was destroyed; while the stone portal of the convent, built on the site of the temple of Janus, was deliberately destroyed; but the temple of Hercules and that of Castor and Pollux, the cyclopean walls, and the bridge attributed to Sulla were undamaged. Pop. 7400.

Coria del Ric tn. of Spain, situated on the Guadalquivir R., 6 m. S.S.W. of Seville. It is noted for the manuf. of jars for oil, and for almonds. Pop. 7177.

Coriander, or *Coriandrum sativum*, species of Umbelliferae which flourishes in Asia, America, and S. Europe. The plant is an ann., with a disagreeable smell,

but the globose fruit for which it is cultivated emits a pleasant odour when dried. On account of this fact it is used in confectionery as an aromatic flavouring, and it is also employed in the manuf. of liqueurs; in medicine it is used as a carminative.

Corigliano Calabro, tn. of Italy in the prov. of Cosenza, 6 m. W.N.W. of Rossano. It is a gloomy and badly built tn., but has a fine castle. Pop. (including commune) 16,000.

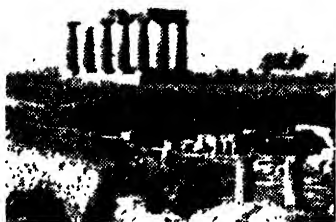
Corinaldo, com. and tn. of Italy, in the prov. of Ancona, 20 m. S.S.E. of Pesaro. Pop. 6550.

Coringa, seaport of India in the Madras presidency, 8 m. S. of Cocanada and 87 m. E.N.E. of Masulipatam. It was formerly of great importance, but is now much decayed owing to the extension of the delta of the Godavari. Pop. 4000.

Corinna, Gk. lyric poetess, b. at Tanagra in Boeotia and lived about 500 B.C. She is said to have been a disciple of Myrtis, and to have instructed Pindar in his youth, but afterwards contended with him in poetical contests. Alexandrian critics praise her work. Until 1907 only a few fragments were extant, which were collected in T. Bergk's *Poete Lyrici Graeci*, but considerable fragments were discovered in Egypt about that year.

Corinth, anct. city of Greece, lying between the gulf of C. on the W. and the gulf of Aegina on the E., 48 m. from Athens. It is situated on the S.W. end of the rocky isthmus of C., which connects the Peloponnesus with the mainland. Its citadel, the Acrocorinthus, was built on the N. slope of a steep mt. (1886 ft. high), with the famous fountain of Pirene near by. The city had three harbours—Schoenus and Cenchræe on the Saronic Gulf, and Lechaëum at its opposite end in the gulf of C. C. enjoyed splendid advantages from its situation, and became the chief trading centre in anct. times of E. and W. traffic. Its chief exports were the productions of ceramic art, and the inhab. also excelled in weaving and in metal-work. C. was supposed to have been founded by Sisyphus about 1350 B.C., but did not come into prominence until after the Dorian conquest. It was ruled by an oligarchy from 743 till 657, when Cypselus became tyrant. Under his rule and that of his son, Periander, the city increased in wealth and power, but in 582 the old constitution was restored. C. joined the Lacedæmonian league, incited the Peloponnesian war (431) upon Athens, and on the fall of that city, united with it and Thebes against Sparta in the Corinthian war (395–387). It was occupied by the Macedonians until 196, and joined the Achæan league, until it was sacked and almost destroyed by the Romans under L. Mummius in 146. Its treasures of art were carried off to Rome, and for many years the city lay in ruins, until Julius Cæsar rebuilt it in 46. During the Middle Ages it passed into the hands of the Venetians, from whom it was captured by Mohammed II. in 1458 and remained in Turkish hands until 1858.

In that year it was destroyed by an earthquake, and the new city was built 3 m. N.E. of the old site. At the time of its prosperity C. had numerous colonies including Syracuse, Apollonia, Coreyra, etc. The tn. was notorious for its luxury and licentiousness, and was beautifully laid out with gardens and fountains, statues and theatres. The anct. temple to Apollo, the theatre, the foundations of the Acrocorinthus, the Agora, and other important sites have been identified, and archaeological excavations have been undertaken by the School of Classical Studies at Athens. The worship of Aphrodite prevailed in the city. The



E. Buchanan

CORINTH, THE TEMPLE OF APOLLO

most celebrated Corinthians are Diogenes, the Cynic philosopher; Cleantes and Cleophantus, painters; and the statesmen Periander and Thucleus. At its height C. had a pop. of 300,000. It is now 5350. In the Second World War the liberating Brit. troops entered C. on Oct. 9–10, 1944.

Corinth, co. seat of Alcorn co., Mississippi, U.S.A., with foundries and machine shops. Owing to its position it played an important part in the W. campaigns of the Civil war. Pop. 7800.

Corinth (or Lepanto), Gulf of, separates the Morea on the S. from Hellas on the N. Numerous small rivs. run into the gulf, which communicates with the gulf of Patras by the strait of Lepanto. Earthquakes are very frequent, the seat of shock being generally between Patras and Poros. The gulf has a length of 75 m., and an average breadth of 15 m.

Corinth, Isthmus of, neck of land, situated in Greece, which unites the Morea to Attica, between the gulfs of C. and Aegina. Many remains of great antiquity have been discovered, including traces of the temple of Poseidon, and the Isthmian wall. A ship canal through the isthmus was begun in March 1882, and completed in Aug. 1893. The canal is

37 m. in length, and has a width at bottom of 69 ft., at the surface of 100 ft., and a minimum depth of 264 ft. The canal was destroyed by the Gers. in the Second World War, but was repaired and brought into operation again in 1948. The new tns. of Isthula and Poseldona are situated at the S.W. and N.E. extremities of the canal respectively.

Corinthians, First and Second Epistles to the. These two epistles included in the N.T. were written by St. Paul to the members of the Christian Church at Corinth, which he had estab. there during his stay of a year and a half. From internal evidence it is ascertained that the first epistle was written in A.D. 56 or 57 from Ephesus, and the second epistle was written from Macedonia in A.D. 57 or 58. There seem to have been two main reasons which induced Paul to write the first epistle—information which he had received from members of the 'house of Chloë' (1 Cor. i. 11) about the condition of the Christian Church in Corinth, and in answer to certain questions which he had received from the Corinthian Church by Stephanas, Fortunatus and Achaicus. From information received Paul learned of the different religious factions of the Christians and wrongs and abuses which were prevalent at that time in Corinth; and he maintained that the Church was the true state, and would be able to settle all disputes, both theological and civil, and condemned the factions and abuses existing in the Church. He also discusses and answers the questions sent to him from Corinth—questions dealing with marriage and celibacy, idolatry, the support of the ministry of the gospel, public worship, institutions such as the Lord's Supper, spiritual gifts, and the resurrection. The second epistle is closely related to the first and Paul determined to write it owing to the good effect on the Corinthians of his first epistle. The Pauline authorship of 2 Cor., in the case of 1 Cor., has been denied only by Ger. profs. with a reputation to make. St. Paul makes his salutation, mentions the Judaizers, and then gives a graphic account of his ministry as an apostle, its methods and its motives. He then describes how he waited for the coming of Titus from Corinth, and his joy at his arrival and the tidings which he brought; he exhorts the Christians to contribute to the collections for the saints in Jerusalem; and describes how the Judaizers assailed him when he was an apostle. Although their integrity has been questioned, it is beyond doubt that both epistles are authentic, and they admirably display the character of their author. For commentaries on the two epistles, see T. T. Shore, 1879; F. Galdet, 1886-87 (1 Cor.); H. L. Goudke, *The Westminster Commentaries*, 1903 (1 Cor.), 1927 (2 Cor.); E. Evans, *The Clarendon Bible*, 1930; J. Moffat, 1938 (1 Cor.), and R. H. Strachan, 1935 (2 Cor.), both in *The Moffat New Testament Commentary*.

Corinto, maritime tn. in the dept. of Chinandega, Nicaragua, Central America, 19 m. W.N.W. of Leon. It is the chief

seaport of Nicaragua on the Pacific. The prin. export is coffee. Pop. 3500.

Corio, com. and tn. of Italy in the prov. of, and 19 m. N.N.W. of the city of, Turin. Pop. 5000.

Coriolano, name of three engravers:

Coriolano, Cristoforo (d. 1600), native of Nuremberg. He cut the very clever portraits of the second ed. of Vasari, pub. at Florence in 1568.

Coriolano, Giovanni Battista (c. 1590-1649), is thought to be the son of Cristoforo, but probably was his grandson. His cuts in wood are few, his work consisting chiefly of engravings and etchings on copper.

Coriolano, Bartolomeo (c. 1599-1676), also said to be the son of Cristoforo. He was b. at Bologna, and studied under Caracci. He executed some very effective prints in chiaroscuro. His prin. work is 'The Fall of the Giants,' after Guido (1638). He was granted a pension by Pope Urban VIII.

Coriolanus, Gaius or Gnaeus Marcius, hero of an early Rom. legend. His original name was Gaius or Gnaeus Marcius and he received his surname Coriolanus owing to his capture of Corioli from the Volscians. Banished from Rome by the commons in 491 B.C., he fled to the Volscians, whose king, Attius Tullius, made him general of their army. He advanced against the Romans, and was only induced to lead back his army by the approach of Veturia, his mother, Volturna, his wife, and his two children. He returned to the Volscians, with whom he lived until his death. Some traditions state that the Volscians killed him on his return. The story is told in Shakespeare's *Coriolanus*.

Corisco Bay, bay of the Gulf of Guinea, W. Africa, in the bight of Biafra, extending from Cape Esteiras on the S. to Cape St. John on the N.

Corisco Island, small is. in Corisco Bay, belonging to Spain.

Cork, co. in Eire, in the prov. of Munster. It is the largest co. in Eire, covering an area of about 2881 sq. m. On the S. coast is the historic 'v. of Kinsale, with its fine harbour, and there are other smaller but good anchorages for yachts. The W. coast is bold and rocky, and is broken up by the bays of Bantry, Dunmanus, and Roaring Water. The surface is undulating, there being low ridges with valleys to correspond running E. and W., but in the W. it is much more mountainous. The highest portion of the co. is in the Boggeragh Mts. in the N.W., which reach to a height of 2118 ft. To the S. are the Shehy Mts., and the Cahra range is to the N. The prin. rvs. are the Blackwater, the Lee, and the Bandon, flowing from W. to E. The Blackwater rises in the co. of Limerick, and the Lee st. in the Gougane-Barra Lough—a very picturesque spot, and the Bandon has its source in Cullinagh Lough. There are no lakes of any considerable size, the largest being Lough Allua, which is an expansion of the R. Lee. The scenery in the W. of the co. is bold and rugged but in the centre there are

quiet green valleys, and some parts are well wooded. So far as climate is concerned, the prevailing winds are W. and S.W., thus making the atmosphere moist and warm. The ann. rainfall in the city of C. is 40 in., but it is somewhat higher over the whole co. The ann. mean temp. is 52° F., and the snowfall for the year is generally very light, and when it falls it never settles for long. There is excellent sea-bathing at many places along the shores of C. harbour and along the coast of the co. Bantry, Glengariff, and Youghal are much visited by tourists in the summer months. There is not much variety in the soil, there being calcareous limestones, mellow loams, grey and red sandstone, peat, and clay. The pop. is most dense near the sea, and along the prin. lines of communication. Oats, potatoes, and turnips are the chief crops grown, and as the pasture land is extending so are cattle, sheep, and poultry on the increase. There is deep-sea fishing, and the salmon and trout fishing is good in the rivs. C. is one of the co. said to have been founded by King John. Its boundaries were not always as far-reaching as they are at present. They now embrace a dist. which was once a separate co., namely Desmond. In 1598 there were two sheriffs in the co. of C., one especially for Desmond. About this date large tracts of land were given to settlers, and Sir Walter Raleigh and Edmund Spenser, the poet, received 40,000 ac. and 3028 ac. respectively. Of the castles in C., Blarney Castle is the most famous, partly because of the old legend attached to the Blarney stone, which is under the parapet at the top of the tower. Kilcolman Castle, near Doneraile, is the place where Spenser wrote his *Faerie Queene*. Pop., including the co. bor., 343,200.

The city of C. is a seaport situated at the head of the splendid inlet known as C. harbour, and also on the R. Lee. Up to the middle of the nineteenth century it was reckoned as second only to Dublin, but now Belfast surpasses it in commercial importance. The nucleus of the city is built on an is. formed by two arms of the R. Lee, and known as the N. and S. Channels. Electric trams connect the city with the suburbs, and cross both the St. Patrick's and Parnell bridges. Fine quays of cut limestone, altogether 4 m. in length, extend all along both branches of the Lee. The Protestant cathedral, founded in 1865, is dedicated to St. Finbarr, who was the founder of the original cathedral in the seventh century. The Rom. Catholic cathedral, on the N. side of the city, is also dedicated to St. Finbarr. The custom house occupies a fine position overlooking the riv., but the usual business and public buildings are on the is. There is a univ. college of the National Univ. of Ireland with over 1000 students. The original site of C. is said to have been in the neighbourhood of the Protestant cathedral. During the ninth century the tn. was many times ravaged by the Northmen, and according to some records it was burnt down in 821, and also in 1012. The harbour is the most

important one on the S. coast of Ireland; it is studded with is., its shores are well wooded, and is altogether most picturesque. It is due to the splendid dredging arrangements that ships drawing 20 ft. of water can reach the quays on all tides. Trade is carried on mainly with Bristol and some of the S. Wales ports. The imports are chiefly wheat and maize, and the exports cattle, provisions, butter, and fish. The chief local industries are distilling, ship-building, iron founding, and bacon curing. There were riots in and near the city in 1919-20, and the city hall and Carnegie Hall were burnt. C. is governed by a mayor, aldermen, and councillors. Pop. co. bor. 75,300.

Cork, tissue or layer of the bark of the C. oak (*Quercus suber*) which grows in Spain, Portugal, and some dists. of Europe bordering the Mediterranean. A tree first yields a supply when it is about twenty years old, and supplies are obtained about every ten years. The first production is of little value, but each successive supply increases in value. The C. is stripped from the tree by means of incisions made in longitudinal and transverse directions by a curved knife with a handle at each end. The pieces thus detached are soaked in water, scraped, washed, pressed flat, and dried. They are then placed over a coal fire which conceals blemishes and blackens and makes smooth the surface. The elasticity of C. makes it useful for stopping bottles and casks; its lightness for life-belts, artificial legs, and the floats of nets; and its impermeability to water for the soles of shoes. The uses of C. were known to the ancients.—Pliny mentions them. Plutarch says that Pontius Cominius swam the Tiber by the help of pieces of C., and the ancients Egyptians made coffins of it. The use of C., however, for stopping glass bottles was not known until the fifteenth century. Sp. black is made by burning the parings of C., and C. waste is employed in the manuf. of linoleum.

Cork, Earls of, *see* BOYLE.

Corleone, tn. of Sicily, situated 21 m. to the S. of Palermo on a hill near the source of the Belici R. Pop. (including com.) 20,000.

Cormac MacArt, or Cormac na Cuinn, king of Ireland from 218 to 254, was grandson of Conn Cead Cathach (Conn of the Hundred Fights). He reigned in great splendour, and was a great patron of art and learning. Schools of military science, law, and literature are said to have been founded by him at Tara in co. Meath. Some of his sayings are preserved in the *Book of Aicill*.

Cormac MacCulinnán (A.D. 901-8), king of Munster in Ireland, a descendant of Angus, was b. in 836. He reunited the offices of king and bishop, being bishop of Cashel. During his reign the country was troubled by the invasions of the Danes, and it was in resisting these that C. fell at the battle of Moy Albo. He wrote a chronicle in Irish verse, *The Psalter of Cashel*, and an etymological glossary of the Irish language, called *The Glossary of Cormac*.

Cormenin, Louis Marie de Lahaye, Vicomte de (1788-1868), Fr. politician. He was appointed auditor to the Council of State; in 1814 he rallied to the legitimate cause, and after the Hundred Days was made master of requests at the Council of State at the restoration of the Bourbons. He wrote many pamphlets about this time, and his *Droit administratif* (1821) for the first time collected the scattered fragments of administrative law, and gave shape to them. Louis XVIII. made him a baron, and Charles X. a vicomte.

Cormons, small tn. of Italy, situated 7 m. W. of Gorz (Gorizia). A statue to the Emperor Maximilian I. was erected here in 1903. Pop. 6500.

Cormontaigne, Louis de (1697-1752), Fr. military engineer who served in the war of the Sp. Succession. He entered the engineers in 1715, and was put in charge of new works—Forts Moselle and Bellecroix at Metz—which he had designed.

Cormorant, or *Phalacrocorax*, large web-footed bird of the order Ciconiiformes, sub-ord. Steganopodes. The C. *P. Carbo* has a bright shiny head and neck, with bluish-black feathers, sprinkled with white. The general colour above is a greenish black, the throat white, and the bill and feet are dark grey. It is found in all parts of the world in coastal regions. This bird is notorious for its voracious appetite. It collects the food in a kind of pouch formed by the dilatable skin at the front of its throat. Cs. feed entirely on fish, which they catch by swimming and diving under the water, sometimes to a considerable depth. There are more than thirty species, among which are the familiar shag, or green cormorant (*P. graculus*), and the small S. European *P. pygmaeus*, which is a freshwater bird.

Corn, collective term which is applied to the grain or seed of any cereal or farinaceous plant as a produce of agriculture. In England it is chiefly applied to wheat, in Scotland to oats, and in America to maize. See BARLEY, MAIZE, OATS, RYE, WHEAT, etc.

Corn, Indian, see MAIZE.

Cornaceæ, order of Dicotyledons, contains less than one hundred species of widely distributed shrubs and trees, usually with opposite and entire leaves. *Cornus* and *Nyssa* are two of the chief genera.

Cornaro, Caterina (1454-1510), member of a celebrated Venetian family who married in 1468 Jacques de Lusignan, king of Cyprus. Her husband obtained the protection of the republic of Venice and a dowry of 100,000 ducats. Caterina did not join her husband until 1472, and the following year was left a widow; she governed for her son, Jacques III., until his death in 1475, when the Senate decreed that she should abdicate in favour of the republic. This event did not take place until 1489, when it was made the occasion of a solemn ceremonial. Caterina retired to the castle of Asolo, near Venice, where she lived till her death; she had always a 'court' of poets and artists. She is buried in St. Saviour's, Venice. Her portrait

has been painted by many artists, including Palma the elder and Titian.

Cornaro, Luigi (1467-1566), Venetian nobleman, whose weak constitution was further weakened by his intemperance in eating and drinking. When he was forty years of age he gave up these habits on the advice of his physicians and began gradually to diminish the quantity of his food, and proceeded to abstemiousness, and within a year his health was in a perfect condition, and his spirits greatly recovered. In his eighty-third year he wrote *Discorsi sulla vita sobria* (*The Advantages of a Temperate Life*), which was pub. in Italy in the vernacular tongue, and in Lat. It was trans. into most European languages, and was at one time a very popular book. The best Eng. trans. is that dated 1779. C. also wrote three other treatises on the same subject.

Cornbrash (geology), sub-div. of rocks occurring at the upper layer of the Lower Oolite rocks of England, and the most persistent stratum of the series, extending as it does right across the country from Dorsetshire to the Yorkshire coast. It is a thin-bedded rubbly limestone, consisting of clays and calcareous sandstones, which pass into the forest marble, as at Bradford, or into beds of clay. It contains many echinodermata and brachiopods.

Corn-cockle, or *Lychnis Githago*, pretty little species of the Caryophyllaceæ of the same genus as the campion and ragged robin, and like them a common object in our fields.



CORNCRAKE

Corncrake, Landrail, or *Crex pratensis*, species of Rallidæ which is well known in Britain on account of its unmelodious voice. The general colour of the bird is a dullish brown, the bill and tail are short, the legs long and powerful, and the toes have sharp claws. It has a wide geographical range which extends throughout the milder regions of all the continents, and it often spends the summer in Britain, haunting dry meadows. It can swim and run easily, but its flight is heavy.

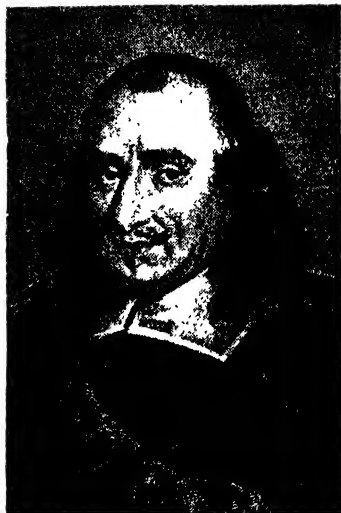
Cornea, see EYE.

Corneille, Pierre (1606-84), great Fr. tragic dramatist and the precursor of Molière in comedy, was b. at Rouen, and studied at his bp. His father was a legal official, and he was trained for the Bar. He tried for some time to obtain a practice at Rouen: he came to Paris in 1629. Here he produced the comedy of *Mélite*, which had already been played at Rouen. This was highly successful, largely on account of the extreme ingenuity and complexity of the intrigue, and was followed by *Chitandre*, *La Veuve*, *La Galerie du palais*, *La Suicanté*, and *La Place royale*. In 1663 C. was presented to Richelieu, who made him one of his five authors, a group of dramatists whom the cardinal kept to carry out plays for which he himself supplied the plot. But he had not sufficiently the spirit of a follower to remain in this position, and he was soon dismissed. At this period C. became acquainted with Sp. literature, and this marks the starting point of his greatness. In 1635 appeared *Médée*, a tragedy which showed a marked improvement on his earlier work, but in 1636 the *Cid*, founded on a drama by Guilhem de Castro, took Paris by storm. While following the Sp. poet closely in detail, C. shows in his treatment the spirit which was to dominate Fr. tragedy. The piece is classically conceived, the hardness and savagery of the Sp. are removed, the action is simplified and concentrated, and the whole drama is changed from the external world to the internal world of the heart. The greater number of the Fr. critics, represented by the recently founded Academy, and instigated by Richelieu, condemned the play severely, on account of its incomplete observance of classical rule. However, all their force was unable to change the popular verdict. As Boileau says:

'En vain contro le *Cid* un ministre se ligue,
Tout Paris pour Chimène a les yeux de Rodrigue';

and the phrase 'beau comme le *Cid*' passed into the language. For three years C. remained in retirement, and when in 1639 he reappeared with *Horace* and *Cinna*, he had learned the lesson of strict submission to the unities. Then came *Polyeucte* (1640), in which a Christian saint takes the place of hero, giving one of C.'s noblest tragedies; *La Mort de Pompée* (1643); *Rodogune* (1646); and *Héraclius* (1647). In 1643 had appeared *Le Menteur*, the comedy which first shows the style which Molière was to perfect. In 1647 C. was elected a member of the Academy, and produced *Andromède*, *Don Sanche d'Aragon*, and *Nicomède*, a kind of tragic-comedy where romantic heroism is mixed with irony, the whole forming the ground of much critical debate. In 1652 the failure of *Pertharite* drove C. from the stage, and he remained in retirement for six years, during which he commenced a trans. of the *Imitatio Christi* into Fr. verse. In 1659 he returned to the stage with *Œdipe*, feeling confident that his

powers were unimpaired. This was an illusion, and henceforth all his works show decline. Here and there are to be found scenes showing his old genius, but these are varied by much poor work. In 1674 his dramatic career ended with *Sertorius*. For ten years the poet remained silent, suffering from the death of his two sons and from domestic troubles, suffering still more from the sense of his vanished genius, and the knowledge that he was abandoned and despised by a new generation. At the age of seventy-eight he d. in Paris. C. is indeed the creator of the



PIERRE CORNEILLE

Engraving after a painting by C. Lebrun.

Fr. tragic drama. 'You know,' writes Racine in the eulogy of C. which he read before the Academy, 'in what a condition the stage was when he began to write. What disorder, what irregularity! . . . All the rules of art, and even those of decency and decorum, broken everywhere. In this infancy, or better in this chaos, of our dramatic poetry, C., after having for some time sought the right path and struggled against the bad taste of his day, inspired by extraordinary genius and helped by the study of the ancients, at last brought reason upon the stage, but reason, indeed, adorned with all the pomp, with all the ornaments which our language can provide. He had the happy gift of reconciling the credible and the marvellous, and left far behind him all the rivals there were.' While the drama of C. has not the freedom of the romantic type, it is by no means so strictly classical as that of Racine. C. accepted the unities, but only with difficulty. His great work is the creation of the

drama of the soul. His characters are exalted and superhuman, always masters of themselves and their emotions. Love he treats as a weakness, the will as the sole source of action. Stoicism and devotion to duty is the lesson he teaches. See C. A. Sainte-Beuve, *Portraits littéraires*, 1844; F. P. G. Guizot, *Corneille et son temps*, 1852; F. Brunetière, *Époques du théâtre français*, 1892; L. Batiffol, *Richelieu et Corneille*, 1936; M. Turnell, *The Classical Moment*, 1947; and lives by G. Lanson, 1898; P. Dorchain, 1927; also M. Turnell, *The Classical Moment*, 1947.

Corneille, Thomas (1625-1709), younger brother of Pierre C., twenty years his junior, *b.* at Rouen. He distinguished himself in early life by a comedy in Latin verse, which he composed while he was at the Jesuits' college. On the death of his brother, Pierre, Thomas took his place in the Académie, and contributed to the *Dictionnaire*, and afterwards became a member of the Academy of Inscriptions. Altogether he wrote forty-two tragedies and comedies. His earlier works are imitations of the Sp. dramatists, the chief being *Don Bertrand de Cigarral* (1650); *Le Géôlier de soi-même* (1655); and *Le Baron d'Albikrac* (1668). Of his comedies the best known are *Les Dames vengées* (1695, in collaboration with Visé); *Le Devin-ressus* (1679); and an adaptation from Molière's *Festin de pierre* (1677). He was, however, made famous by his dramas *Timocrate* (1656); *La Mort d'Annibal* (1669); *Ariane* (1672); and *Le Comte d'Essex* (1678). See G. Reynier *Thomas Corneille, sa vie, ses ouvrages*, 1892.

Corneil, see under CORNUTS.

Cornelia: 1. The daughter of Publius Scipio Africanus. She married Sempronius Gracchus, and was the mother of Tiberius and Caius Gracchus, the noted reformers. In her were exemplified the virtues of the best type of Roman matron, and a statue was erected to her during her lifetime, with the inscription 'Cornelia mater Gracchorum.' See Valerius Maximus, 4, c. 4; Cicero in *Brut.* 58, and *De Clavis Oratoribus*, 58, etc. 2. The daughter of Metellus Scipio, and married first Publius Crassus, and afterwards Pompey, by whose influence her father obtained the consulship. She was the helpless witness of her husband's murder by Achilles in the bay of Alexandria, and it is said that he attributed all his ill fortune to her unlucky influence.

Cornelia Gens (the family of the Cornelli) was a famous Roman family, who gave to Rome many exalted men in all branches of learning and art. The family had a patrician and a plebeian branch. The former branch had four great branches, those of Lentulus, Maluginensis, Rufinus, Scipio, each of which produced some great names. To the plebeian branch belonged Gallus, Tacitus the historian, Celsus the physician, Cornelius Nepos the biographer, and a great many others.

Cornelian, see CARNELIAN.

Cornelisz, Cornelia (Cornelis van Haarlem) (1582-1638), Dutch historical and portrait painter *b.* at Haarlem, who

received lessons in his youth from Pierre Aartzen and later from Porbus and Colinet. His 'Banquet of the Archers' Guild' (1583) is in the Haarlem Museum; and his 'Massacre of the Innocents' (1590) is in Amsterdam. Another well-known example of his art is 'The Deluge,' painted for the earl of Leicester. Also painted some Biblical pictures.

Cornelisz, Jakob, or **Cornelisz van Amsterdam**, fifteenth-sixteenth-century Dutch painter, whose works are represented in museums at The Hague, Berlin, Antwerp, and Vienna.

Cornelisz, Lucas (1495-c. 1552), Dutch subject and portrait painter, *b.* at Leyden. He received instruction in art from his father, Cornelius Cazelbrechtsen, who was the tutor of Lucas van Leyden. Owing to poverty he was forced to act as cook, but on going to England, about 1527, he was made royal painter by Henry VIII. Afterwards he was employed at the court of Ferrara in Italy from 1535.

Cornelius, name of a centurion of the 11th cohort stationed at Caesarea. In consequence of a special revelation Peter received him into the communion of the Christian Church directly by the rite of baptism without preliminary ceremonies such as circumcision, etc. This is generally regarded as being the beginning of the introduction of Gentiles into the Christian Church. Such a view is not quite justified by the fact of the case; for the introduction of the Ethiopian eunuch (Acts viii. 38) may have been prior to this, and C. could hardly be regarded as a Gentile, as he was a proselyte at the gate. There is, however, no doubt that the relaxation of the exclusiveness of the early church dates from this period. Legend tells us that C. founded a church at Caesarea and became bishop of Scamandros. See Acts x.

Cornelius, Aurelius, see CILIAUS, AULUS.

Cornelius, Peter (1824-74), Ger. author and musician, nephew of Peter von C. (q.v.). His opera entitled *The Barber of Bagdad* was produced at Weimar under the auspices of Liszt, who was his friend. The work was hissed off the stage, and Liszt resigned his post as conductor in consequence. C. went to Vienna and occupied himself in writing songs and poems, being very much under Wagner's influence. His second opera, *Le Cid*, was produced at Weimar in 1865. For the last decade of his life he was at work on his opera *Gundel* and other compositions, besides writing ably as fully on Wagner's music dramas. In 1867 he became teacher of rhetoric and harmony at the school of music, Munich, where he married Berthe Jung. Many of his original poems and trans. from the Fr. are still highly esteemed, and among his songs, the lovely *Waldnachtlieder* and *Brandlieder* are especially noteworthy.

Cornelius, Peter von (1783-1867), celebrated Ger. painter, was *b.* at Düsseldorf, and early exhibited a taste for art. At the early age of nineteen he was commissioned to paint the cupola of the church of Reuss. He visited Rome, and illustrated Goethe's *Faust* in a manner worthy of the subject. In 1808 he went

to Frankfurt, where he was well received, and in 1811 to Rome, where in conjunction with Veit, Overbeck, and others he founded practically a new school of Ger. art and revived fresco painting. In 1824 he was made director of the Academy of Munich; in 1841 he was made a member of the Academy of Berlin. He exhibited at Paris in 1855 four cartoons of the decorations of the Campo Santo, or royal mausoleum, of Berlin, which were widely admired. The frescoes in the Bartholdy Palace at Rome, representing the hist. of Joseph, are among his best works. Among his other works may be mentioned his great national picture 'Cycle of the Nibelungen,' his fresco illustrating Tasso's *Jerusalem Delivered*, the frescoes in the Glyptothek of Munich, and his colossal 'Last Judgment' in the Ludwigskirche at Munich. He d. at Berlin. C.'s art was essentially Ger., and he illustrated with remarkable felicity the masterpieces of Ger. poetry. He introduced into his work an objective and metaphysical element which was liable to abuse. In his compositions the noteworthy features are the grandeur of the conception and the sublimity of treatment rather than purely natural effects. Some of his frescoes are magnificently executed, in particular those of the Glyptothek in Munich. He had numerous famous pupils, among them Kaulbach, and some of the finest Ger. engravers, such as Amsler, Eberle, etc., selected his pictures to work on, and so enhanced their popularity. See lives by A. Kuhn, 1921, and K. Koetschau, 1934.

Cornell, Ezra (1807-74), Amer. philanthropist, b. at Winchester Landing, New York. In his early life he practised as a mechanic in Ithaca, but later on he became very rich through organising telegraph companies, and also putting up telegraph lines. C. Univ. was founded by him at Ithaca in the year 1868.

Cornell University, named after its founder, Ezra C. It was estab. in 1865 in Ithaca, New York. It received large endowments of public lands from the State in return for giving to one student every year, from each of the 128 dists. of New York state, a free education in agriculture and mechanics. Instruction is given in arts and sciences, architecture, engineering, economics, and agriculture. Now has over 5000 students and a faculty of over 1100 members. Its lands, buildings, and equipment are valued at nearly \$3,000,000, and it has a library of approximately 800,000 books. Receives large Federal grants and State appropriations.

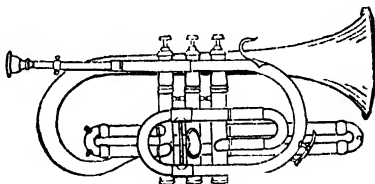
Corner, word of Amer. origin, in the first instance used to denote a market given to a particular class of stock, e.g. railway C. Now, however, it is used for a speculation in the stock exchange in which a broker or brokers put up all the available stock of any particular commodity, such as wheat, with a view to forcing sellers of the stock or commodity to buy from those who formed the C. at their own price. A C. is generally brought off in a new security when by false dealing stock-jobbers are persuaded

to sell speculatively shares which really are in the hands of the set of people who cornered the market.

Corner, Julia (1798-1875), Eng. authoress who wrote for children. Her best known works are *The Child's Own Sunday Book* (1850); *Culverley Rise* (1861); *The Good Children* (1854); and *The Miller's Maid* (1867).

Cornet, lowest rank of commissioned officer in the cavalry, corresponding to ensign in the infantry. In 1871 the title of C. was abolished and that of second lieutenant substituted. The work of a C. was to assist the captain in the duties connected with his troop.

Cornet (Fr. *cornet à piston*; It. *cornetto*), treble wind instrument made of brass. It has a cupped mouthpiece, and a tube intermediate in size between a trumpet and a bugle, which give it a tone intermediate between these two instruments. Its open notes consist of C (below the treble staff), G, C, E, and above the staff C, B₂, C, and in addition four



VALVE CORNET

higher notes D, E, F, and G, and a fundamental note, C (an octave below the staff), but these last five notes are seldom used. Three slides give the connecting notes and half-notes of the scale, the first slide lowering the sound by one tone, the second by a semitone, and the third by three semitones. Three valves or pistons which are depressed by the fingers allow the air to pass through these slides. The C is used in orchestral and solo music and in military bands. Formerly the C. was played in a number of different keys, but, like the trumpet, it now exists, as an orchestral instrument, in the two keys of B flat and A.

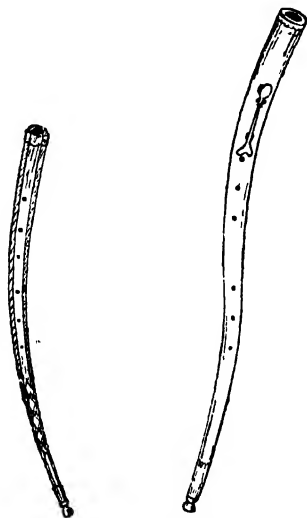
Corneto Tarquinia, tn. and episcopal see in Italy, 63 m. from Rome. There is a fine cathedral there, also sev. old churches and palaces. Matches and pottery are manufactured there. It is noted for its Etruscan antiquities which were found at the adjacent Tarquinii. There still exists at Tarquinii a large Etruscan necropolis. Pop. 8000.

Cornett (Ger. *Zink*), old wind instrument, now in disuse, in no way resembling the modern valve cornet. It had a long, thin, slightly tapering stem, curved or straight, made of wood or ivory, and covered with leather. An offshoot of the C. was the serpent (q.v.).

Corn-flour, starchy ingredient of puddings, sauces, etc., obtained from finely ground maize or Indian corn. Also denotes flour made of rice or any other grain.

The starchy granules, after separation from the germ and gluten, are carefully selected and purified. The germ, after its oil has been extracted, is used for cattle food, as is also the residue of coarser constituents of the granules. See MAIZE.

Cornflower, or **Bluebottle**, or *Centaurea Cyanus*, species of the order Compositae, is a weed commonly found in wheat-fields.



CORNETTI OR ZINKEN

Treble and one-keyed tenor, 16th and 17th centuries

Cornhill, thoroughfare in the city of London, running between the Poultry and Leadenhall Street. The name goes back to the beginning of the twelfth century. Stow suggests that it may be on the site of an ant. corn market, and so have received its name, but there is no trace of one having existed at that date. At the beginning of the fourteenth century there were a prison, a pair of stocks, and a pillory used for the punishment of bakers, millers, and other offenders. It is now a busy commercial thoroughfare with business houses, banks, and insurance offices. The poet Gray was born here.

Cornhill Magazine, literary magazine, founded in 1860 by Thackeray, who was its first editor. To it he contributed *Lovel the Widower*, *Philip*, and *The Roundabout Papers*. In it appeared George Eliot's *Romola*, Matthew Arnold's *Culture and Anarchy* and *Literature and Dogma*, and it has also numbered among its contributors Ruskin, Mrs. Browning, Tennyson, Fitzjames Stephen, Leslie Stephen, and James Payn. It was formerly much illustrated, and brought out the cartoons of Richard Doyle, and sketches by Leighton, Du Maurier, and

Thackeray. Editors were Dutton Cook, Leslie Stephen, and later James Payn. The present editor is Peter Quennell; and the publisher John Murray, 50a Albemarle Street, London, W.1.

Cornice, in architecture, is the moulded projection which crowns or finishes the entablature, each order of architecture having its own peculiar C. The Grecian Doric C. is composed of few and bold parts, really of little more than a corona (the projecting and prin. member in every C.) finished above by one or two simple mouldings, and having attached a series of shallow platos or tablets called mutules, which are a distinctive feature of the Doric C. Dentils are peculiar to the Ionic C., and modillions to the Corinthian C. In the Gothic order there are various styles of Cs.; sometimes it was in the form of a row of corbels bearing the parapet, and sometimes small arches surmounted the corbels.

Corniferous Period (from Lat. *cornu*, horn, *ferre*, to bear). In Amer. geology this is the second of the four great divs. of the Devonian system, and includes the Schoharie grit and Corniferous limestone. It is a widespread formation, full of fossils, and rocks of this series, mostly sandstone, are found along the Appalachians in Ohio and in Canada, where they enclose valuable deposits of petroleum.

Cornigliano, com. in Italy, 3 m from Genoa, of which it is a residential suburb. Cotton spinning and dyeing are done here. Pop. 20,000.

Corniglio, com. in Italy in prov. of Emilia, 27 m. from Parma. Pop. 7500.

Cornimont, com. in the Vosges dept., France, with thread manufs. Pop. 4500.

Corning, Erastus (1794-1872), Amer. capitalist, b. at Norwich, Connecticut. Removed to Albany, New York, in 1814, and eventually became the owner of large iron works and banks. Principally known as connected with early Amer. railway development.

Corning, city of Steuben co., New York, U.S.A., situated on the Chemung R., in the S. part of the state, a centre of a dairying and tobacco growing region. Its industrial life consists of foundries, machine works, brick and glass works, and lumber mills. Pop. 16,200.

Cornish, Vaughan (1862-1948), Eng. geographer, b. at Debenham, Suffolk. Educated at St. Paul's School and Victoria Univ., Manchester. Gill memorial award, Royal Geographical Society, 1900. Grand Prix, Franco-Brit. Exhibition, 1908 for scientific photography. From 1935 occupied in geographical research and, particularly, in the movement for preserving the scenery of rural England. Dedicated S. Combe Farm on Sidmouth cliffs as an open space. President, geographical section, Brit. Association, 1923; of the Geographical Association, 1928. Pubs. include *A Strategic Atlas of the Occans*, *National Parks and the Heritage of Scenery* (1930); *The Poetic Impression of Natural Scenery* (1931); *The Scenery of England* (1932); *Ocean Waves and Kindred Geophysical Phenomena* (1934); *The Beauties of Scenery* (1943);

Geographical Essays (1916); *Photography of Scenery* (1946).

Cornish Language. The old C. L. belonged to the Cymric div. of Celtic, in which are also included Armorian (see BRITTANY) and Welsh. It survives in a few words still used in the fishing and tin-mining communities, as well as in the names of persons and places, but the last persons who spoke it (the last of all was reputed to be one Dolly Pentreath) died towards the end of the eighteenth century. The most interesting relics of the language extant are a few miracle plays, entitled *Guaries*, which were ed. and trans. by Edwin Norris (Oxford, 1859). Added to the trans. is a sketch of Cornish grammar, and a vocabulary from a thirteenth-century MS. (Cotton MSS.). The only dictionary is Williams's *Lexicon Cornu-Britannicum* (1865). Of the Cornish miracle plays the most considerable of the series were those known as the *Ordinalia*, of which two fifteenth-century copies are still in existence. Most of the Cornish miracle plays emanated from Glasney College at Penryn and date from 1350 to 1500. Two notable plays are *The Life of Saint Meriasek* (1504), and *The Creation of the World, with Noah's Flood*, the latter compiled by Wm. Jordan of Helston as late as 1611. See Richard Carew, *Survey of Cornwall*, 1602 (his knowledge of the C. L. was, however, very limited); H. Jenner, *Handbook of the Cornish Language*, 1904; and M. Nance, *Folklore recorded in the Cornish Language*. See also W. Borlase, *Antiquities of Cornwall*, 1754.

Corn Laws, name given to certain statutes passed in the Brit. Parliament relating to the exportation and importation of grain. Laws regulating trade in corn date as far back as the reign of Edward III. In the reign of Henry VI., with the object of securing a plentiful and cheap supply for home consumption, no corn was allowed to be sent out of the country. In the reign of Elizabeth little advantage was taken of the new law providing free importation, and practically all the corn grown remained in the country. Towards the end of the seventeenth century the legislators, who, being generally landowners, had the interests of agriculture at heart, conceived a new plan of promoting home production. Exportation was now encouraged freely by bounties, but the price of corn remained low and tended to decrease. In 1773 Burke passed an Act which exacted the small duty of 6d. on foreign corn, which might be imported when the home price was at or above 48s. a quarter. The exportation with its corresponding bounty were to cease when the home price was at or above 44s. This legislation was very beneficial to the rising manufacturing classes, but in 1791 it was repealed in the interest of the landowners when there was a prohibitive duty on corn below 50s. In 1815 Parliament enacted that foreign corn might not be imported into Great Britain until the home price of wheat had reached 80s. a quarter. The law caused great economic distress. In 1827 and

1828, more Liberal measures were brought before the House by Canning and Charles Grant. Agriculturists were gradually being convinced of the fact that the C. L. were based on a wrong principle, and that the interests of the general community were being sacrificed to the supposed interests of the landowners. England was still suffering from the effects of the Napoleonic war, and a series of bad harvests (1816 and 1837-42) increased the distress. Robert Peel attempted to effect a compromise by introducing a system of a sliding scale in the duties, depending on the rise and fall in the price of wheat. In 1836 an agitation was started in Manchester for the repeal of the C. L. and in the following year the Anti-Corn Law League was formed. Mr. Cobden and Mr. Bright were among the foremost of the advocates of Free Trade. The country was inundated with pamphlets on both sides of the question. In 1843 corn was allowed to be imported, at a practically negligible duty, from Canada, and before long it happened that Amer. corn came into England, through Canada, at the same rates. Peel, who was himself willing to abandon protection, could not hold his ministry together and resigned. He was obliged, however, to take office again, and in 1846 declared himself a convert to Free Trade. A fixed but reduced duty was placed on corn for three years, after which the C. L. were to be abolished. The price of corn did not fall greatly with the repeal of the C. L., nor did agriculture appear to suffer any great loss, while the country prospered in its industries. Towards the end of the nineteenth century, however, it was felt that the agric. interests of Great Britain had suffered considerably, and a Fair Trade party urged that a moderate protection should be given to benefit the agric. classes. In 1903, at a time when Great Britain was suffering from the S. African war, a registration duty of 1s. per quarter was placed on imported grain and flour, but the tax was abolished in the following year. In the meantime Joseph Chamberlain brought before the country his scheme of preferential tariff for the colonies, with a tax of 2s. on foreign grain. Owing to the unrestricted naval warfare waged by Germany during the First World War and the consequent urgency of the question of food production in Great Britain, the Brit. Gov. introduced Bills which were passed in 1917 and in 1918 in the hope of stimulating corn production in the United Kingdom. Although these were war measures, they remain permanently on the Statute Book, and their ultimate effect on the increased production of corn in Great Britain was practically nil. A converse problem, however, arose later, for in the seven years immediately before the outbreak of the Second World War, a world economic problem was the disposal at a remunerative price of the huge accumulations of wheat in America and Australia. In Aug. 1933 an international wheat agreement was concluded between the U.S.A., Canada, Australia, and the chief European powers for

the quantitative regulation of exportable wheat and its allocation among producers. But in the crop year 1938-39 world supplies exceeded 5,000,000,000 bushels for the first time in hist., and though the 1939-40 crop was substantially smaller than this record, largely owing to reduced acreages sown in the U.S.A. and India, the decrease was offset by a heavy carry-over, and the net effect of the great surplus of wheat stocks was the forcing down of the price below the lowest level previously recorded, which was in 1931. A world conference was proposed in Jan. 1939 to consider the problem, but no decision was reached before the Second World War broke out later in the year. See articles on PÉEL, BRIGHT, CORDEN, CHAMBERLAIN, FREE TRADE, and PROTECTION. Consult the text of the C. I. in *British Statutes* (16 vols.), London, 1882-1909; W. T. Thornton, *Historical Summary of the Corn Laws*, 1841; and J. S. Nicholson, *History of the Corn Laws*, 1904; C. H. Fay, *Corn Laws and Social England*, 1933.

Corno di Bassetto, see SHAW, GEORGE BERNARD.

Corno, *Molle*, name of the mt. which terminates the Gran Sasso Range in the Apennines, Italy. Height 9580 ft.

Cornouaille, dist. in Brittany in the dept. of Finistère; the chief tn. is Quimper. It is barren, rocky, and desolate, resembling in many features some parts of Cornwall in England.

Corns, growths caused by the thickening of the cuticle, generally on the toes, arising from continued pressure over a projecting portion of bone. They are either hard and dry when they are situated externally, or soft when they occur between the toes, which C. are often very painful. A hard corn begins by the thickening of the skin, as the pressure of the boot increases so does the irritation and thickening until the core of the corn is formed. The treatment of C. consists in the removal of all pressure (such as tight or bad-fitting boots), and then to pare or file away the hard skin and extract the root of the corn. If the corn is very hard it is best to soak the foot in hot water, and apply a solution of salicylic acid and collodion for sev. successive days and let it dry. This tends to soften the epidermis, and after a few applications the corn can be pared away when placed in hot water. Horses, as well as men, are subject to C., usually caused by the animal being badly shod (see under HORSE—DISEASES).

Cornu, *Maxime* (1843-1901), Fr. botanist, who, in 1872, graduated in natural science with a thesis, *Mono-graphie des Saprolégniques*. His books all deal with the anatomy, pathology, and physiology of plant life.

Cornu Ammonis, old Lat. name for the fossil shells well known to us as ammonites. They received their name from a fancied resemblance to the horns sculptured on the head of Jupiter Ammon.

Cornu Copiae, later called *Cornucopia*, a horn of plenty. It is used as a symbol of prosperity. In architecture and sculp-

ture the horn is often seen placed in the hands of Plutus, Fortuna, and others, who pour from it abundance of fruits or corn.

Cornude, com. in prov. of Venetia, Italy, 16 m. from Treviso. Pop. 3600.

Cornus, chief genus of Cornaceae, is widely distributed in all lands but Australia, and consists of twenty-five species of shrubs, trees, and herbs. *C. sanguinea*, the common dogwood or cornel, is a berry-bearing shrub with cymes of white flowers. It is found in England in woods and thickets, especially on a chalk or limestone soil, and its wood is used in making small instruments. *C. suecica*, the dwarf cornel, is a herbaceous plant about 6 in. high, with few flowers. It is a creeping plant growing in pastures in Scotland and Northumberland and its berries have tonic qualities. The bark of *C. florida*, *C. sericea*, and *C. coccinea* are used in the U.S.A. as substitutes for Peruvian bark. *C. canadensis*, or bunchwood, has large conspicuous flowers. *C. officinalis* is cultivated in Japan as a febrifuge.

Cornutus, L. Annæus, Stoic philosopher of the time of Nero, who exiled him for criticising his projected verse chronicle of Persian annals. One of his pupils was Persius, whose satires he revised. See G. Martini, *De L. Annæo Cornuto*, 1925.

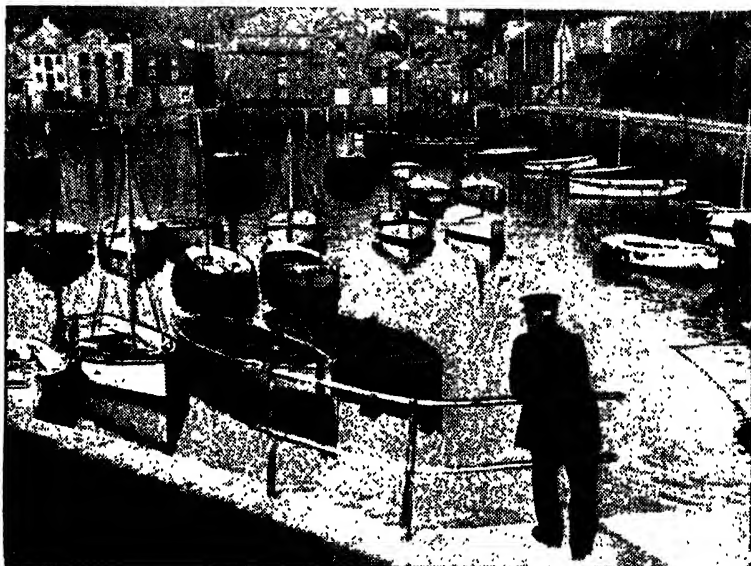
Cornwall, Barry, see PROCTER, BRIAN WALLER.

Cornwall, Earl of, see GAVESTON, PIERCE.

Cornwall, S.W. maritime co. of England, bounded on the N. and N.W. by the Atlantic Ocean, E. by Devonshire, and S. and S.W. by the Eng. Channel. The Scilly Isles, 24 m. W. of Land's End, form part of the co. There are only two harbours of any importance on the N. coast, one formed by the estuary of the Camel, where Padstow is situated, and the other being the bay of St Ives; there are numerous small creeks of little importance. The coastline on the N. is formed of bold and rugged cliffs, and is famed for its wild, rocky scenery while the S. coast is still bold and rocky, but in a lesser degree, and its headlands are covered with luxuriant vegetation. Falmouth harbour, on the S. coast, is one of the finest in Britain. The surface of C. is extremely irregular, and from the Tamar to Land's End it is a series of rugged hills, alternating with wide stretches of moorland. Brown Willy (1368 ft.) is the highest point in the co. The chief riv. is the Tamar; it is tidal, and navigable for 19 m. The climate is mild, particularly in the S., and there the vegetation grows in almost tropical abundance, fuschias, geraniums, camellias, myrtles, and hydrangeas of considerable size flourishing in the Penzance and Falmouth dists. during the winter; in the Scilly Isles exotics grow in the open, and a good supply of early vegetables is the result of the development of market-gardening. The growing of anemones alone has an ann. value of £250,000 sterling. Fruit-trees, with the exception of the apricot, nectarine, and peach, thrive successfully. C. ranks high as an

agric. co.: the soil is rich in most parts, the crops plentiful, and very early in some localities. Oats form the most important grain crop; the green crops include swedes, turnips, and mangolds. The Cornish broccoli trade was expanded in 1925 with 1 lb. of Fr Roasoff seed, and developed into an industry worth £1,250 000 a year by 1939. Numbers of cattle and sheep are bred. C. formerly obtained much wealth from its mines, yielding tin, copper, lead, iron, zinc, bismuth, and arsenic. At one time C.

Lizard dist., and made into ornamental objects; it is noted for its beautiful colourings. The fisheries of C. are among the most important on the S.W. coast, and form another industry of the co. The chief fishing stations are on Mount's Bay and at St. Ives; mackerel, pilchards, and herrings are caught in large quantities, 20,000 hogsheads of pilchards being taken in an average year. In some respects the natives resemble the Welsh people, such as in their aptitude for oratory and an intense love and pride of country. It is a



MEVAGISSEY, A CORNISH FISHING PORT

John H. Stone

supplied half of the world's copper, and all Britain's tin. As late as 1913 5000 tons of tin were produced yearly, but at the present day 2000 mines are abandoned and only four are working. The decline has been caused by the easier worked Malayan sources for the difficulties of extraction in C. are considerable, and the cost therefore high. The rich lodes remain, however, and the newly formed Cornish Mining Development Association has set forth (1948) a plan for development which, it is stated, can eventually produce tin and by-product metals (arsenic, tungsten, etc.) to an ann. value of £3,000,000, providing sufficient capital and labour is available. A product also of great importance is China clay, the centre of this industry being at St. Austell. It is exported to the pottery dists. for the manuf. of porcelain and to Lancashire for cotton goods. The serpentine rock is largely quarried in the

co. full of prehistoric remains. They may be classed as follows: (1) Cromlechs, such as Lanyon, Mulfra, and Zennor, these all being found in the Land's End dist. The first is high enough for a man to ride under. (2) Rough monoliths, found in all parts of C. (3) Circles, of which the prin. is that known as the Hurlers, near Liskeard. (4) Alignments, or avenues of stones, a very interesting example of one being that called the Nine Maidens near St. Columb Major. The anct. remains also include hut dwellings, cliff castles, and hill castles. C. possesses many ruined castles, such as those at Tintagel and Launceston, parts of which date from Norman times. The co. belongs to the W. circuit, and the assizes are held at Bodmin. The co. tn. is Truro (pop. 12,000). C. is popular with holiday-makers and tourists. Area 868,167 ac. Pop. 317,900. See R. Polwhele, *The History of Cornwall*, 1816; W. Collins,

Rambles beyond Railways, 1851; M. Quiller-Couch, *Cornwall's Wonderland*, 1914; C. E. Vulliamy, *Unknown Cornwall*, 1925; A. Mee, *Cornwall*, 193; A. K. Hamilton Jenkin, *Cornish Miner*, 1927. *Cornwall and its People*, 1945.

Cornwall, co. seat of Stormont co., Ontario, at the foot of the long Sault Rapids of the R. St. Lawrence, 55 m. S. of Ottawa, 67 m. W. of Montreal, on the main line of the Canadian National railways, and on the Canadian Pacific railway and New York Central railroad. Situated on the St. Lawrence R. (bridge to New York State), it has unlimited cheap hydro-electric power. Has a good harbour for lake and riv. traffic. Began as the co. seat of an agrio. area that exported only potash, grain, and masts for sailing ships. To-day it is an industrial community, with textile and chemical plants, furniture, pulp and paper, fibre products, and draperies. It is the market centre of a rich mixed farming and cheesemaking dist. C. was founded in 1783 by United Empire Loyalists. It was incorporated as a tn. in 1848. Almost opposite is the Indian vil. of St. Regis, C. Pop. 15,000.

Cornwallis, Charles, Marquess (1738-1805), son of the first Earl C. On leaving college he entered the army, and in 1761 served a campaign in Germany. In 1762 he succeeded to the earldom and estates of his father. In 1770 he was made governor of the Tower. When the war of Amer. Independence broke out he accompanied his regiment and was victorious over Gen. Gates at Camden, 1780; also over Gen. Greene at Guilford, 1781; but at Yorktown, Virginia, disaster befell him, and the Eng. cause in America was completely overthrown. He escaped censure owing to the great esteem in which the king held him, and in 1786 he was appointed governor-general of India, and while there made many reforms, but on account of differences with Tippoo Sahib his plans were much interrupted. In 1791 he captured Bangalore, and after having concluded a treaty with Tippoo Sahib he returned to England in 1793. He was then raised to the rank of marquess, and in 1798 was appointed to the viceroyalty of Ireland, where he succeeded in subduing the rebellion of 1798, showing much integrity and wisdom in his method of obtaining peace. In 1801 he was replaced by Lord Hardwicke. In 1802 he negotiated the peace of Amiens. In 1805 he was sent to India as governor-general in the place of Lord Wellesley, but upon arrival at Calcutta his health had already broken down, and on the way up country, to take command of the troops, he died at Ghazipur. See W. S. Seton-Karr, *Cornwallis*, 1890.

Cornwallis, Sir William (1744-1819), admiral, was the younger son of Charles, first Earl C. He entered the navy in 1765, and in 1768 served at Louisbourg. In 1759 at the battle of Quiberon Bay, and for his services was made commander in 1762. He was afterwards engaged in the actions off Grenada (1779), St. Kitts (1782), and Dominica (1782). He was

made rear-admiral in 1793, vice-admiral in 1794, and admiral in 1799. In 1795 he encountered a Fr. force far greater in numbers than his own, but safely escaped, and he commanded the Channel fleet in 1801 and from 1803 to 1806. See C. F. M. Cornwallis-West, *Life and Letters of Admiral Cornwallis*, 1927.

Cornwell, John Travers (1899-1918), boy naval hero of the First World War who, at the battle of Jutland, stayed alone at his post on the *Chester*, though mortally wounded. He was awarded the V.C. posthumously.

Coro, tn. in Venezuela, S. America, cap. of the state of Falcón, about 210 m. W.N.W. of Caracas. It was founded in 1527, and was the cap. of the Sp. prov. from that date until 1578. Pop. 10,930, of whom many are Indians and mestizos. It has much declined since Caracas was made the cap. Its port is La Vela, which exports coffee and hides. Pop. 15,000.

Corocoro, tn. and mining centre in the dept. of La Paz, Bolivia. Copper ore is the chief product of the mines, and it is exported from Mollendo. Pop. 3000.

Corolla (from Lat. *corona*, a wreath or crown), inner whorl of floral envelopes which surround and protect the essential organs of the flower. The C. is made up of petals which are usually brightly coloured and often scented, in order to attract insects for the purpose of pollinating the flower. Another function of the petals together with the sepals is to protect the stamens and pistil when the flower is in bud, and in some cases from rain, etc., by closing when the sun goes in. When the petals are free from one another, as in buttercups, the flower is said to be polypetalous; it is gamopetalous when they are joined to form a tube or cup as in primroses. A flower is distinguished as hypogynous, perigynous, or epigynous, according as the base of the petals are inserted below, on a level with, or above the ovary, as in buttercup, rose, snowdrop, respectively. In many flowers, e.g. daffodil, there is no distinction between two floral envelopes, but the calyx and C. together form the perianth; in other cases there is calyx only, and C. is missing, e.g. meadow-rue. When all the petals are alike the flower is said to be regular, as in lily, otherwise it is irregular, as in orchid, pea, etc. Of irregular flowers the two best-known types of C. are the bi-labiate or two-lipped, as in the dead-nettle family, and the ligulate or strap-shaped, which occurs in the outer florets of the daisy. In some cases the C. is fugacious, i.e. it falls off as soon as it is gathered, as in flax; in a few cases it is persistent and remains in a withered condition round the fruit; this occurs in campanula.

Corollary, in mathematics, is a proposition which follows another proposition as a consequence, and therefore does not require any separate demonstration.

Coromandel, name of the oldest gold field in New Zealand. It is the centre of the gold-mining and kauri timber dist. on the C. (Colville) peninsula. It was discovered in 1852. Pop. 2000.

Coromandel Coast, name given to E. coast of India, between Cape Calimere and the mouth of Kistna R.

Coron, or **Koron**, seaport and fortress of Greece in Messenia, situated on the W. coast of the gulf of Kalamata, near the site of the anct. Colonides. The industry of the tn. is silk manuf. Pop. 2700.

Corona: 1. In botany, the crown at the mouth of the tube formed by the perianth (petals and sepals) in the genus *Narcissus*. 2. In architecture, the lower part or drip of a cornice which projects for some distance in order to carry off the rain.

Coronado, Francisco Vázquez de (1500-1545), Sp. explorer of the S.W. of the U.S.A.; appointed in 1539 governor of New Galicia; set out in 1540 to discover the 'seven cities of Cibola.' He explored E. Arizona, the Rio Grande, and Kansas. See G. P. Winship, *The Coronado Expedition*, 1896.

Coronation (Lat. *coronare*, to crown), ceremony of crowning the sovereign of a country. The practice of placing a crown on the head of a new sovereign dates from early times, as we read in the O.T. that Solomon was crowned. The kings of



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THE CORONATION CHAIR AND HIGH ALTAR, WESTMINSTER ABBEY

The term is also used of the crown or circlet suspended from the roof of a church to hold tapers, which are lighted on solemn occasions. 3. In astronomy, see SUN.

Corona Borealis and Australis, N. Crown and S. Crown. The first is a N. constellation, found in Aratus, who says it was formed by Bacchus in memory of Ariadne. It is situated between Bootes and Hercules, and the bright star of its cluster (marked α) may be seen about an hour E. of Arcturus, and about eight degrees nearer to the pole. N. Corona was the first nova to be observed with the spectroscope (1866). C. Australis is a small S. constellation, first found in Ptolemy's catalogue. It is situated between the front legs of Centaurus.

Coronach, name applied to a dirge which in years past was sung at funerals in Ireland. In the highlands of Scotland the singing of this dirge was called keening (as also in Ireland), but it is sometimes played on the bagpipes.

Israel and Judah were usually anointed with oil by the high priest, by which act they were consecrated to the service of God. This anointing with oil still forms part of the C. service of a Brit. sovereign. It probably resembles the hallowing of kings mentioned in the *Anglo-Saxon Chronicle*, and its form is in all essentials that used since the time of Richard I., though, of course, the service has been modified from time to time. The C. of the Brit. sovereign takes place in Westminster Abbey. The anct. C. chair is carefully preserved, and has been used at the C. of Eng. kings and queens since the time of Edward I. Under the throne rests the Stone of Destiny (*Lia Fail*), which, according to tradition, was the pillow of Jacob, and was, in the fifth century B.C., carried to Ireland and thence to Scotland. It was brought to England by Edward I. as a symbol of his conquest of Scotland, for on that stone the Scottish kings had always been crowned. The service is read by the archbishop of

Canterbury, after which the sovereign takes his C. oath. The oath in the Eng. service has always been very explicit, in this way differing from that of other European countries. After the revolution of 1688 the Brit. sovereign had to promise to maintain 'the laws of God, the true profession of the Gospel, and the Protestant reformed religion as it is estab. by law.' Special clauses were here added which were particularly obnoxious to the Rom. Catholic subjects in the United Kingdom. By an Act of Parliament in 1910 the oath was altered, and the objectionable phrases omitted. After the oath has been taken the sovereign is seated in the anct. C. chair above mentioned, and is anointed, on the head, breast, and palms of the hands, with holy oil from the ampulla. Next follows the investiture, when the sovereign dons the *colobium sindonis*, a white silk shirt, and is girt with a sword. The orb and the ring are also delivered to him, after which he is crowned by the archbishop. The sovereign then goes back to his throne, and receives the homage of the peers. It was formerly the custom for the consort of the sovereign to be crowned some months after the formal C., but at recent Cs. in England the consort was anointed and crowned after the acts of homage had been paid. The king and queen finally received the holy communion. In early times in Europe a king or queen was not recognised until the C. had taken place. Now the reign dates from the accession and not from the C., which is usually delayed for some months after the death of the late sovereign. *Consull L. G. W. Legg, English Coronation Records, 1901; H. Thurston, Coronation Ceremonial, 1911; P. E. Schramm, The History of English Coronations (trans.), 1937.*

Coronation Gulf, arm of the Arctic Ocean, the extreme N. point of Canada. It was discovered by Sir John Franklin (1786-1847), the Arctic explorer.

Coronation Scot, Brit. steam locomotive, built in Scotland for the coronation celebrations of Edward VIII. (which did not take place), incorporating the latest developments in streamlining. Achieved a maximum speed of 127 m.p.h. on a journey the average speed of which was 61 m.p.h. It was sent for propaganda and exhibition purposes to the U.S.A. in 1945, and presented to the Amer. Gov. in celebration of the armistice.

Coronea, anct. tn. in Boeotia, in Greece, and situated to the W. of Lake Copais. The Boeotians conquered the Athenians here in 447 B.C., and the Spartans defeated the Thebans and their allies in 394.

Coronel, Battle of, naval battle in the First World War fought on Nov. 1, 1914, off Coronel on the coast of Chile, between Rear-Adm. Cradock's squadron comprising the armoured cruisers *Good Hope* and *Monmouth*, the light cruiser *Glasgow*, and the converted merchantman *Otranto*, and a Ger. squadron commanded by Adm. von Spee consisting of the armoured cruisers *Scharnhorst* and *Gneisenau*, and the light cruisers *Leipzig* and *Dresden*. The Brit. ships were old and their arma-

ment immensely inferior to that of the Ger. cruisers. The flagship *Good Hope* carried two 9.2-in. guns, but for the rest only 6-in. guns were carried. The Gers. mounted a broadside of no fewer than sixteen 8.2-in. guns. The result was never in doubt, and the *Good Hope* and *Monmouth*, after a gallant fight against odds, were sunk, the Brit. loss being 1400 men. The other two boats escaped, the *Glasgow* eventually taking part in the battle of the Falkland Is. in which Adm. Cradock's defeat and death were completely avenged.

Coronella, genus of ophidians inhabiting Europe, Asia, and America. All are harmless, *C. laevis* (or *austriaca*), a species found in Britain, is called the smooth snake. It is about 2 ft. in length, feeds on lizards and mice, and is viviparous.

Coroner. The office of C. is one of considerable antiquity. The *Mirror of Justice* is cited by Coke to show that the office existed as early as the reign of Alfred. But there is no satisfactory evidence to establish an earlier period than that of Richard I. The name of C. is said by Lord Coke to be derived from Lat. *corona* (a crown), from the fact that the C.'s office had principally to do with pleas of the crown. In this general sense the lord chief justice is by virtue of his office supreme C. for England, with power to hold an inquest in any part of the kingdom. But the officers now usually understood by this term are the co. Cs., although the Coroners Act, 1887, which re-stated the qualifications of a C., expressly saved the powers of *ex officio* Cs. In early times the office of C. appears to have been one of great estimation; for by statutes of the reign of Edward I. and Edward III., they are required to be knights, or 'of the most meet and most lawful men of the county.' Before the Coroners Amendment Act there was a proprietary qualification, the idea being that the C. should have sufficient wherewith to answer to the people for his shortcomings. The property qualification is now practically dispensed with, as the Coroners Act of 1887 has in effect left the co. to pay any penalties incurred by the C. A C. must be a barrister, solicitor, or qualified medical practitioner of not less than five years' standing in his profession. The C. formerly had jurisdiction of a very comprehensive nature, embracing inquiries as to sudden death, treasure trove, wreck, whales, sturgeon, and deadlands (proceeds of sale of a personal chattel which had caused the death of any person ordered to be paid to charity). The Coroners Act, 1887, put an end to all these duties except the function of holding inquests *super visum corporis*, and as to sudden death and treasure trove. The prin. duty of a C. is, with the assistance of a jury composed of at least twelve men and not more than twenty-three, to inquire into the deaths of persons who have died suddenly by violence, under suspicious circumstances, in prison or at the hands of the hangman. C. Cs. are elected for life; but if they accept any office incompatible with their duties, such

as that of sheriff or alderman, or become incapacitated, they may be removed by means of the writ *de coronatore exonerando*; and a C. guilty of extortion, corruption, or wilful neglect of duty, is, by an Act of George II.'s reign, not only punishable as for misdemeanour, but also incapable of ever again acting as a C. The lord chancellor has power independently of the above Act, to remove Cs. for neglect of duty, upon petition presented by the freeholders of the co. A C. can enforce a post-mortem examination of the body and summon medical or other witnesses. He may also order exhumation, but would generally, in cases of doubt, first obtain the order of the home secretary. The C. must, but the jury need not, view the body. If the C.'s jury find a verdict of murder or manslaughter, the C. can commit the accused for trial, and, in manslaughter, admit him to bail. The verdict of the jury must be that of twelve at least. Under an Act of 1926, if the C. learns, before the verdict, that some person has been charged with murder, manslaughter, or infanticide, he must adjourn the inquest until the criminal proceedings are concluded. In consequence the C. has virtually ceased to exercise the function of committing persons for trial. Even if the justices decline to commit for trial, the prisoner is not generally tried on the C.'s inquisition. Under a local Act the C. of the City of London is empowered to hold an inquiry into the outbreak of fires, which inquiry may eventuate in a verdict of arson. A departmental committee appointed in 1936 to inquire into the law concerning Cs. reported that their jurisdiction should be limited to investigation of how, when, and where death occurred; that a C. should not have power to commit a person for trial on a charge of murder, manslaughter, or infanticide; that Cs. courts should be prohibited from passing censure; and that only barristers should be appointed to the office. Under the London Government Act, 1939, a C. for the co., or his deputy, is disqualified for being elected or being a member of the co. council.

Coronet. Inferior crown worn by the nobility. In England they were in use in the reign of Edward III., but the different forms given to the Cs. of the various orders of the peerage are of later date, as is also the use of the crimson velvet cap, lined with ermine and surmounted by a gold tassel, now worn within the C. Barons first wore Cs. in the reign of Charles II. They are worn by peers on the occasion of a state ceremony, such as the coronation of a king. In 1665 permission was granted by Charles II. to the peers of Scotland and Ireland to use similar Cs. to those worn by Eng. peers. The following are the different forms that are used throughout Great Britain: the C. of the Prince of Wales differs from the royal crown only by the absence of one arch. The C. of the other princes, sons of the king, have no arches. The C. of a duke bears over the rim of gold eight strawberry leaves. A marquess has four strawberry leaves,

alternating with as many pearls upon short points. An earl's C. has eight points of a greater height, with a pearl on each, alternating with as many strawberry leaves on the rim below. A viscount's C. has sixteen pearls set on the rim itself, while a baron has six in the same position. The pearls, so named are made of silver. No peer, unless of royal family, may have his C. adorned with jewels. The Cs. of foreign nobility have no caps, and are used only in blazonry.

Corot, Jean Baptiste Camille (1796-1875), Fr. landscape painter, b. in Paris. According to his father's wishes, he became an assistant in a Paris drapery business, but, after having served an apprenticeship of seven years, he resolved to become a painter. He first studied art with Michallon, on whose death he passed into the atelier of Victor Bertin. In 1825 he went to Italy, where he stayed for two years, studying the old masters and feeding his imagination upon the beautiful scenery that surrounded him. In 1827 he exhibited two lt. landscapes at the salon, 'Vue prise à Narni,' and 'Campagne de Rome.' He then settled in Paris, though he again travelled in Italy, in 1835 and 1843, as well as in England and Switzerland. In 1833 he won a medal of the second class, and in 1855 and 1857 medals of the first class. He received the cross of the Legion of Honour in 1846, and was promoted officer in 1857. C.'s genius was not early recognised, and he made his way slowly, but in later life wealth and honour were heaped upon him. In 1874 his admiring, almost worshipping friends, hurt by the indifference of the Salon gave him a gold medal. His pictures were sold at a very high price, but C. was indifferent to money. 'Illegar in the Wilderness' and 'Dante' he never parted with, refusing all offers for them. He was a gentle, kind-hearted man, very generous to his friends, and devoted to his mother and sister. He never married. C.'s early work is clearly influenced by his classical studies. He showed an extraordinary technical ability; his drawing is very careful and detailed, and his execution somewhat precise and severe. He peopled his landscapes with nymphs and goddesses. It was not till about 1843, after his return from his second visit to Italy, that he began to assert his full individuality. Following the example of Constable and other Eng. painters, he worked out of doors, choosing for his main sketching ground Barbizon, in the forest of Fontainebleau, and the valley of the Seine. He interpreted nature in her tender, elusive moods, on a hazy spring morning or a shadowy night. He was fond of painting mists, and his colours are of the most delicate shades of greys and greens. Some critics have objected that he did not paint in nature's blemishes. His pictures are imaginative visions of 'the light that never was, on sea or land.' Among his masterpieces are 'Danse des Nymphes,' 'Orphée,' 'Paysage,' 'Mao-beth,' 'Joueur de flûte,' 'Homère et les bergers,' 'Les Bûcherons,' 'Étoile du soir,' 'Effet de matin,' 'Plaisirs du Soir,'

and 'Baptême de Jésus-Christ.' See A. A. P. C. Blanc, *Les Artistes de mon temps*, 1876; G. Geoffroy and A. Alexandre, *Corot and Millet*, 1902; E. Meynell, *Corot and his Friends*, 1908; also lives by A. Michel, 1905; M. Lafargue, 1925; C. Manclair, 1930; P. Jamot, 1936.

Corowa, tn. on the N. bank of the Murray, New S. Wales, Australia. There are lead mines in the neighbourhood, and the tn. is noted for its butter, wine, and dried fruits. Pop. 2500.

Corozal, tn. in Bolivar, Colombia, 75 m. from Cartagena. There is an active trade in cattle, tobacco, and straw mats. Pop. 11,000.

Corporal, in the Brit. Army, a non-commissioned officer ranking below a sergeant. The derivation of the word is somewhat doubtful, but similar terms are in use by other countries for non-commissioned officers of corresponding rank, as *caporal* in France, and *caporale* in Italy. A C. is distinguished by wearing two chevrons on both sleeves. While he has certain advantages, and on occasion may be given the command of a small number of men, C. usually takes his place in the ranks as a private during parade. In the household cavalry there is a C. of horse, the equivalent of the sergeant elsewhere; while in the navy the term ship's C. is applied to a petty officer who takes orders from the master-at-arms.

Corporal, name of the linen cloth used in the Rom. Catholic and the Anglican churches to cover the sacred elements of the eucharist. There are generally two in use, one spread on the altar for the vessels to stand on, and the other is used to cover over the chalice.

Corporal Punishment, see FLOGGING.

Corporation. A C. is an association of individuals which by a legal fiction is regarded as a single person. The distinguishing characteristic of a C. is expressed in the maxim that a C. can never die, and consequently the death or change of the persons who administer the corporate property has no effect upon the ownership, which subsists in the artificial person or legal entity of the C. The notion of a C., together with its various corporate attributes, is a conception borrowed from the Rom. legal idea of a *collegium*, having a right of universal or perpetual succession. In the Eng. system Cs. are said to be either sole or aggregate. The best examples of Cs. sole are the king and a parson. A C. sole implies a succession of single persons occupying a particular office, each assuming the rights and powers of his predecessor. The conception of a C. sole appears to be quite indigenous to Eng. law. The constitutional dogma that the king cannot die is supposed to have originated in turbulent times, when it was desirable to make an impression on superstitious minds. A C. aggregate is defined by Blackstone to be one which consists of many persons united in one society; hence many writers consider Cs. aggregate to be the only true form of C. Illustrations are the mayor and commonalty of a city or tn. (see under Borough), now called a municipal C.

Cs. are also classified as eccles. and lay. Illustrations of the former are bishops, deans, and chapters. The latter are divisible into *civil*, or such as exist for temporal purposes, and *ecclesiastical*, or such as are constituted for the perpetual distribution of alms, e.g. hospitals supported by voluntary contributions. Modern writers frequently classify Cs. into eccles., municipal, trading, charitable, and educational. Lay Cs. may also be divided into *privileged*, i.e. endowed by the law with special powers in excess of the ordinary law for the purpose of carrying out some work to the public advantage, e.g. chartered companies; and *unprivileged*, the most common examples being registered joint-stock companies. These latter entities are assimilated rather to ordinary partnerships in many respects. A C. can only be created by the king or an Act of Parliament; but when any such body has existed from time beyond legal memory (i.e. the death of Richard I., 1199), it is presumed to have originated in one of these ways. The essential characteristics of a C. are the use of a common seal, the power of making by-laws, the capability of suing and being sued in its corporate name as a single person (so that the C. as an entity is responsible for the acts, contracts, and defaults of its members), the power of the majority to bind the C., and the power at common law to acquire and hold land. The power to hold land is, however, restricted by the Mortmain Acts, which make it necessary for a C. to obtain the licence of the Crown before it can acquire land for any purpose. The dissolution of a C. may be effected by a surrender to the Crown, where all the members concur. See also BOROUGH.

In the U.S.A. C. is the equivalent of the Eng. joint-stock company. See COMPANY.

Corporation Duty, duty of 5 per cent levied by the Customs and Inland Revenue Act, 1885, on the ann. value of income or profits accruing to a corporation (q.v.) from all its real and personal property. This duty is a substitute for death duty, which a corporation escapes inasmuch as by a legal maxim it can never die, even though the physical persons composing it may. But a corporation is liable to pay succession duty on realty acquired under a will, and legacy duty on a gift of personality.

Corporation Profits Tax is the name given to a tax which was first imposed in the budget of 1920-21. It imposed a tax of 1s. in the pound on the profits of limited liability companies. The net proceeds from this tax for the year 1928-1929 amounted to £817,129.

Corporative State, state whose polity is characterised by a political organisation in the nature of an industrial parliament instead of a chamber of deputies. This political machinery was gradually evolved in Italy by the Fascist gov. of that country. In 1934 a National Council of Corporations was constituted, consisting of representatives of all the chief trades, while the governing body of each individual corporation included representatives of the state administration and

of the Fascist party. Its salient feature was the equal proportion of representatives of capital and labour for each section of a corporation, together with an additional element of technical experts. The name corporation was that originally applied to the Fascist trade unions which were designed to replace the old labour unions or confederations. In 1938 the Grand Fascist Council resolved to replace the then existing chamber of deputies by a new chamber of the Fascist corporations as the legislative and representative organ of the state. The new council was to be formed by a combination of the National Council of the Fascist party and the National Council of Corporations, and in 1938 the new chamber thus formed entirely replaced the old parl. system. When Franco defeated the republicans in Spain he set up a C. S. on the It. model.

Corps, Army, signifies the organisation of a number of combatant troops under one commander, and consisting of divs. of infantry, each supplemented by a number of brigades of cavalry and batteries of artillery (armoured car units would now take the place of cavalry for the most part). As such it was abolished in the Brit. Army in 1906, but restored in the First World War. It comprised not fewer than 60,000 men.

Corps of Royal Engineers, see ENGINEERS.

Corpulency, see OBESITY.

Corpus Christi, one of the prin. feasts in the Rom. Catholic Church: founded by Pope Urban IV. in 1264 in honour of the Blessed Sacrament. The festival is kept on the first Thursday after Trinity Sunday.

Corpus Christi: 1. Thriving city and seaport, cap. of Neuces co., Texas, U.S.A., on C. C. Bay, 192 m. W.S.W. of Galveston. Much cotton is grown in the vicinity and it is a popular resort of visitors. It has extensive trade in fish, oysters, turtles, canned food, and fruit. Pop. 57,300. 2. Lagoon in the gulf of Mexico between the is. of Mustang and coast of Texas.

Corpus Christi College: 1. One of the colleges of Cambridge Univ., founded in 1532 by the brethren of two guilds of C. C. and the Virgin Mary in Cambridge, for the purpose of educating clergy to take the place of those who had died during the plague. Henry, duke of Lancaster, alderman of these guilds, procured a royal charter for ratifying the endowment. The college was also known as St. Benet (Benedict) from a neighbouring church of that name, at which the fellows worshipped. In 1578 Sir Nicholas Bacon added a chapel to the building, and Archbishop Parker bequeathed to it his valuable manuscript library. Christopher Marlowe and John Fletcher, the Elizabethan dramatists, were members of the college. 2. One of the smaller colleges of Oxford Univ. It was founded in 1516 by Richard Fox, bishop of Winchester, and lord privy seal, for a president, twenty fellows, twenty scholars, and two chaplains. The main buildings consist of the quadrangle, hall, chapel, and library. In 1706 Dr. Turner erected an additional building overlooking Christ Church walks.

C. C. was the first college in Oxford to throw open its professorial lectures to all members of the univ., and the first to establish an endowed chair of Gk. It has numbered among its scholars Nicholas Udall, Hooker, John Keble, and Thomas Day.

Corpuscles, Red and White, see under BLOOD.

Corpus Delicti (Lat., body of the offence), in the Scots criminal law means the substance of the crime or offence alleged, together with the attendant circumstances, as specified in the libel (the summons containing the prosecution's allegations). The C. D. must be satisfactorily proved before a conviction can be obtained.

Corpus Juris Civilis, literally a body of civil law, a term denoting the main body of Rom. law, at the time of the Emperor Justinian, incorporated in the *Codez*, *Pandect* or *Digest*, *Institutes*, and *Novell*.

Correggio, tn. in a fertile plain, n.w. of Reggio nell' Emilia, Italy, 11 m. N.E. of Reggio. Here Antonio Allegri, surnamed C., was born and died. Pop. 19,100.

Correggio, Antonio Allegri da (c. 1494-1534), It. painter, surnamed C. from the place of his birth, a small tn. near Modena. Nothing very definite is known about his life. Vasari and contemporary historians record that he lived and died in poverty, but from existing documents it appears that he received a high price for his pictures, and that his relatives were tradespeople in comfortable circumstances. It is quite uncertain who was his first teacher. He is said to have studied under Francesco Bianchi-Ferrari at Modena, but his early work shows no resemblance to that of this artist; Giambattista, Lombardi, Andrea Mantegna, and his uncle, Lorenzo Allegri, a local painter of little note, have also been named. Lombardi was head of the academy at Correggio, and very probably taught him anatomy. In his treatment of mythological subjects, and in his figures of children, he clearly shows the influence of Mantegna. C.'s figures of children have never been surpassed. In writing of them, Annibale Caracci said: 'Everything that I see astonishes me, particularly the colouring and beauty of the children, who live, breathe, and smile with so much sweetness and vivacity.' Traces of the influence of Raphael and of Leonardo da Vinci may also be found in C.'s work, but at the same time his style is peculiarly his own. It is remarkable for chiaroscuro. The lights and shades imperceptibly glide into one another, and his exquisite, delicate colours attain perfection. In 1518 C. was engaged on frescoes for the Camera di San Paolo (the chamber of the abbess) in the monastery of S. Ludovico at Parma. There he also executed frescoes for the cupola of San Giovanni, and his 'Assumption of the Virgin' for the cathedral excited the highest praise from Titian. In 1530 he returned to Correggio, where he lived till his death. He had early attracted the attention of Lady Veronica Gamba, and still retained her patronage. C. devoted himself to mythological and

sacred subjects. The frescoes at Parma (1518) represent Diana, drawn in a car by white stags, with cupids peering through vines. Other mythological pieces are 'Mercury teaching Cupid to read,' in the National Gallery, London; 'Jupiter and Antiope,' in the Louvre; and 'Danae,' in Rome. Among his sacred pictures are the famous 'Notte' (1529), a beautiful picture of the nativity in the Dresden Gallery; 'Ecco Homo,' in the National Gallery; and 'The Marriage of St. Catherine,' in the Louvre. His greatest fresco work is, perhaps, that in the cupola of the cathedral at Parma, already mentioned. The Madonna, surrounded by a



ANTONIO ALLEGRI DA CORREGGIO

Engraving after a self-portrait, Parma Cathedral.

host of singing and adoring angels, goes forward to meet her son, Christ. The frescoes in the cupola of San Giovanni show Christ in the clouds, with His twelve apostles seated below. See C. Ricot, *Antonio Allegri da Correggio*, 1896; H. Thode, *Correggio in Kunstler-Monographien*, 1898; S. Brinton, *Correggio*, 1900; T. Sturge Moore, *Correggio*, 1906; and P. Rol, *Il Correggio*, 1921.

Correlation of Organs, interdependence which appears to exist between certain structures in an organism. Instances are given in the works of Cuvier, Isidore Geoffroy Saint-Hilaire, Charles Darwin, and others, but the laws governing them are still obscure. Hairless dogs have imperfect teeth, and pigeons with short beaks have small feet. Sometimes the correlation seems particularly whimsical, as in the case of male white cats with blue eyes, which are generally deaf. The only generalisation possible is the rule that certain structures are so intimately associated that variation in one is always accompanied by variation in the other.

Correspondence Classes. Chautauqua Literary and Scientific Circle in 1878 inaugurated a system of education by C.

exercises being sent out to pupils residing in all parts of the U.S.A., the work being sent back to tutors for correction, and the corrected exercises and explanations returned to the pupils. Britain has adopted the same system in connection with univ. extension organisation. See CHAUTAUQUA INSTITUTE. The Univ. Correspondence College is one of the chief institutions of the kind; it prepares pupils for London Univ. examinations, and degrees may be obtained through preparation by C. alone. The college magazine, pub. weekly, is *The University Correspondent*. Text-books are pub. in connection with the C. C. by the Univ. Tutorial Press.

Correspondence Schools. In 1856 Charles Toussaint, a Frenchman, and Gustav Langenscheidt, a Ger., founded a school for teaching foreign languages by correspondence. Later, with the popularisation of Univ. Extension lectures, C. S. became numerous, especially in the U.S.A. In America in 1873 the Society to Encourage Studies at Home was formed, and in 1875 a Correspondence Univ. was started 'to supplement the work of other educational institutions by instructing persons who from any cause were unable to attend them.' About 1880 Thomas J. Foster, an Amer., started a column in his paper, *The Mining Herald*, open to questions and answers on mining problems. He then prepared a course on the subject of coal-mining and later the International Correspondence Schools of Scranton, Pennsylvania, were formed. In England C. S. are held to help students through qualifying examinations such as the matriculation and general schools examinations. There are also a number of commercial C. S. that offer courses in accountancy, journalism, commercial art, etc. Similar commercial C. S. exist also in the U.S.A. In Canada, owing to vast tracts of sparsely inhabited country, education is carried on to a large extent by correspondence. The educational authorities of Toronto issue courses of instruction in the usual secondary school subjects.

Corrèze, dept. of S. Central France, part of the old prov. of Limousin. The surface forms a lilly tableland, especially in the N.E. dist., which is broken up by various fertile riv. valleys. The chief rivs. are the Dordogne, Vézère, and Corrèze. The climate is generally cold and damp, but milder in the S.W. valleys. Wine of medium quality is produced from the vineyards in the dists. around Brive. Sheep, pigs, and goats are extensively reared, and poultry farming and cheese-making form an industry to many of the inhab. The mineral products include slate, coal, iron, stone, and alabaster. The most important industry of C. is that of the manuf. of fire-arms at Tulle, the cap. of the prov. There are also flour mills, breweries, oil, and dye-works. The dept. is divided into the two arrons. of Tulle and Brive, and the means of communication are by the Orléans railway and the Dordogne, which is navigable. Pop. 284,000.

Corrib, Lough, lake in W. Ireland, in the co. of Galway and Mayo. It is the second largest in Ireland, being 27 in. in length, with an extreme breadth of 7 m. It is very shallow, and contains about 300 is.; its outline is very irregular, and it is drained by the R. Corrib into Galway Bay. It is connected on its N. side with Lough Mask, by means of a partly underground channel.

Corriehe Moor, on the borders of Kincardine and Aberdeen shires, in the par. of Banchory Ternan, about 15 m. from Aberdeen. In Oct. 1562, the earl of Huntly was here defeated by Queen Mary's soldiers, under the command of her half-brother, the earl of Moray.

Corridor (Fr. *corridor*, from It. *corridore*; Lat. *corridorium*, from *currere*, to run) gallery or passage in a large building, such as a palace, hotel, or hospital, on to which many different apartments open.

Corrie, see CIRQUE.

Corrientes: 1. Prov. of the Argentine republic, bounded on the W. by the Paraná and on the E. by the Uruguay R. The N. dist. is low and marshy, but the S. is fertile with some forests. The chief industries are connected with cattle rearing, maize, cotton, indigo, tobacco, fruits, especially oranges, sugar, and timber. Its prin. riv. is the C., 120 m. long. Area 34,325 sq. m. Pop. (1914) 347,000; (1945) 1,382,000. 2. Cap. of the above prov. on the E. bank of the Paraná, below the confluence of this riv. and the Uruguay, some 300 m. N. of Buenos Aires. It is surrounded by orange groves and trades in hides, maté, cotton, wool, sugar, and tobacco. Cattle, sheep, and horse rearing and shipbuilding are carried on. Pop. 65,000. 3. Cape in the prov. of Buenos Aires, Argentina, the end of the Tandil Sierra.

Corrievechan (Gaelic, Breacan's cauldron), whirlpool off Argyllshire, Scotland, between the is. of Scarba and Jura, caused by the meeting of tides about a rock some 15 ft. below the surface.

Corrigan, Michael Augustine (1839-1902), third Rom. Catholic Archbishop of New York, U.S.A. He was b. in Newark, New Jersey, and graduated at Mount St. Mary's College, Emmittsburg (1859), and later became prof. of theology at Seton Hall College, S. Orange. In 1873 he was made bishop of Newark by Pius IX., and in 1885 succeeded McCloskey as archbishop of New York.

Corroboree, name applied by the aborigines of Australia to a nocturnal convention. Strange rites are performed, and there is also wild and furious dancing round the camp-fires. These Cs. take place on all great occasions. It is 'the medium through which the delights of poetry and the drama are enjoyed.' It is also the occasion for gymnastic displays and religious observances and, in fact, for all sorts of festivities. See W. M. Roth, *Ethnological Studies*, 1897; B. Spencer and F. J. Gillen, *The Native Tribes of Central Australia*, 1899; and *Native Tribes of the Northern Territory*, 1914.

Corrosion of Metals, loosening or eating

away of the substance of metals by changes of chemical composition. The dangerous effects of corrosion may be the weakening of a metallic structure, as in bridges, boilers, etc., or the introduction of metallic poisons into water and food-stuffs. Some metals do not readily enter into chemical composition. For this reason gold, silver, platinum, and copper are sometimes called the noble metals, and they are accordingly useful where the maintenance of purity is of first importance. For many purposes these metals are much too expensive, and the liability of such metals as iron, lead, and zinc to corrosion is compensated for by their comparative cheapness. Iron is particularly prone to enter into chemical combination. Dry air has no effect on iron at ordinary temps., neither has water from which all dissolved air has been expelled. Water and air in conjunction, however, lead to the formation of ferric hydroxide, or iron rust. The rust forms slowly at first, but is of such a porous nature that it aids in bringing the moist air and the iron into closer contact, and the corrosion, once started, proceeds apace. Rusting is promoted by the presence of CO₂, acid vapours, and ammoniacal salts, but is retarded by the presence of alkalis. In order to prevent corrosion, the metal may be covered by paint, oil, varnish, etc., or, to better effect, by a thin film of the black oxide of iron. In Bequerel's process for oxidising iron, the metal is made the positive electrode in a solution of sulphate of iron and sal ammoniac, the oxide being deposited as the result of electro-chemical action. In Barff's process the iron, heated to redness, is exposed to superheated steam at a temp. of 650°, the oxide being formed by decomposition of the water vapour. For cooking utensils, etc., iron is often covered with a plating of tin, zinc, or nickel. The plating should be continuous, as an attack of rust at one spot quickly spreads to other parts. Water-pipes are protected from rust by being plunged while at a red heat into a mixture of tar, pitch, and linseed oil. Rusting in boilers is usually the effect of the oxygen dissolved in the water, and may be to some extent avoided by turning the air expelled from the heated water into the steam space directly, without allowing it to come into contact with the under-water portion of the boiler. Zinc slabs are now fitted into some boilers so as to set up galvanic action in which the zinc, as negative plate, dissolves, while the iron, as positive plate, is unaffected. In bridges and other steel structures, the prevention of corrosion is a matter concerning public safety. The best method recognised is to paint after thorough cleaning. The whole surface is first examined for rust and scales, because the hydroxide would be produced underneath the paint if the process had once started. A dressing of boiled linseed is then applied to promote the adherence of the paint. Red lead is used for the first coat, and every riveted surface should be painted before the parts are put together. Finally

the whole structure receives a coat of red iron oxide paint, which should be renewed at least once in every three years. Iron-work below water, as the pillars of piers, should be embedded in concrete.

The corrosion of other metals does not usually affect the strength of structures much, but in some cases it has poisonous effects. Drinking-water is often stored in lead-lined cisterns and conveyed in lead pipes. Certain salts, particularly those of ammonia, promote the formation of lead hydroxide, a soluble salt. The solution usually proceeds slowly, but as the effects of lead poisoning are cumulative it should be attended to where it is suspected.

Copper combines with acetic acid to form verdigris. It may therefore give rise to poisoning if vegetable substances are allowed to ferment in copper utensils. It is probable, however, that many cases of so-called copper poisoning are due to ptomaines, as the formation of sufficient verdigris to cause serious poisoning argues uncleanness out of the ordinary. See F. L. Hinde, *Corrosion of Lead in Buildings*, 1934; U. R. Evans, *Metallic Corrosion, Passivity, and Protection*, 1937.

Corrosive Sublimates, Mercuric Chloride ($HgCl_2$), is formed by passing chlorine over heated mercury. It is prepared on a large scale by heating a mixture of mercuric sulphate and common salt. It sublimes as a white mass, dissolves in water, readily melts, and volatilises unchanged. It dissolves without decomposition in sulphuric and nitric acids. It is a violent poison, the best antidote to which is the white of an egg or albumen, since it forms an insoluble compound with albumen. Because of its strong antiseptic properties it is largely used by taxidermists.

Corrugated Metal. Iron and other metals are corrugated in order that their rigidity and power to resist buckling may be increased. It is done by means of pairs of ridged rollers through which the metal is passed. Its most extensive use probably is in galvanised iron, i.e. zinc-plated iron, for roofs of buildings. The principle is of great value mechanically as, for example, in flues of boilers, where the corrugation adds to the strength and increases the heating surface, while it is further used as flooring for bridges.

Corrupt Practices Act, see BRIBERY and ELECTIONS.

Corry, tn. in Erie co., Pennsylvania, U.S.A., 37 m. S.E. of Erie, in a natural oil and gas dist. The chief trade is in steel, lumber, flour, leather, and bricks. Pop. 6900.

Corsairs, pirates of the Middle Ages. They plundered ships of their own or any other nationality, their one object being to procure booty. After the discovery of America, the Mediterranean, and the Atlantic Ocean, even as far N. as Iceland, especially became infested by them. The richly laden ships from the Indies were the especial prey of the Moors in revenge for their persecution by the Spaniards in Spain. They built citadels in Algiers, Tunis, and Tripoli, and produced great

leaders like Khair ed Din (Barbarossa), Uruch, and Dragut. Turkish C. waged war upon the vessels of Christian nations. In course of time that of C. became a recognised calling, and a sovereign would sometimes call in their aid in time of war. This they sold and retained a large portion of the profits. Many attempts to suppress the C. were made by Christian govts. in the interests of their trade. But only at the congress of Paris in 1856 were the powers able to come to an agreement, and even then the U.S.A. and Mexico would give no formal undertaking. The U.S.A. and Spain did not revive the custom during the war of 1898.

Corseul, tn. in Côte-du-Nord, France. It is situated to the N.W. of Dinan, and is the site of many ruins, among them a Rom. temple and other Rom. remains. Pop. 2500.

Corsham, tn. in Wiltshire, England, 3½ m. from Chippenham; with an anct. church, and extensive quarries of Bath stone and the anct. mansion of Lord Methuen called Corsham Court. Pop. 4000.

Corsica (Fr. Corse), large is. in the Mediterranean, forming a dept. of France. It lies to the N. of Sardinia, from which it is divided by the Strait of Bonifacio. Its greatest length is 114 m., and breadth 52 m. It has sev. rvs., the Golo being the longest. The coast-line is rugged, and affords many bays and harbours, the most important being Porto, Sagone, Ajaccio, Valinco, St. Florent, Ile Rousse, and Calvi. The climate varies from warmth in the lowlands to extreme cold in the mt. regions, snow lying six months of the year on the highest summits. The soil is very fertile, but lack of enterprise in the inhab. makes agriculture backward. The uncultivated dists. are covered with a dense growth of arbutus, thorn, myrtle, and broom, known as the maquis. The culture of fruit, the vine, citrons, and olives, vegetables, and tobacco, also the rearing of sheep, goats, and silkworms, are the chief industries. The chief exports are wool, wood, wheat, wine, cork, tobacco, silk-worms, oranges, etc. In the inaccessible parts of the mts. live a peculiar breed of sheep, called moutons, and in the E. parts wild boars and stags are found; the latter are exceedingly scarce. There are mines of anthracite, antimony, copper and silver lead, also valuable stone, such as alabaster, jasper, marble, porphyry, red and blue granite. At Guagno, Pardini, Gultera, and Orozza there are mineral springs. The manufs. are not of much importance, consisting chiefly of the preparation of preserved citrons, of macaroni, an extraction of acid from the chestnut bark, and the manuf. of cigars. The character of the Corsican is one of dignity and pride; he has much native courtesy, which is shown in the hospitality he extends to strangers, but to his fellow-countrymen he is relentless when once roused, but the custom of the vendetta (exploited in the Corsican *nouvelle*, *Colomba*, by Prosper Mérimée, 1840), has died out. The C. peasant is invariably a small landowner, but he is generally too proud and too idle to work,

and the women in consequence are often prematurely old-looking. Its, however, from the Apennines come over in gangs and do part of the hard work and then return home. There is nothing commonplace in C. scenery. It is full of freshness and novelty. Here is a corner of Algeria, there one of Italy, of Greece, of Provence. The pop. is 267,800. The original inhab. of C. were probably Ligurians, and the first civilised people who estab. themselves there were Phœceans of Ionia, who landed about 560 B.C., and founded the tn. of Alalia. At the end of the sixth century these people were driven out by the Etruscans, who in their turn had to make way for the Carthaginians, and these again were followed by the Romans. In time the Genoese came into possession, who surrendered it to the Fr., being unable to subdue the Corsicans who had risen under Gen. Paoli. Britain was appealed to for assistance, and in 1794, after hard fighting, C. offered the sovereignty to King George III. of England. Brit. rule lasted for two years, then C. passed once more into the hands of France, and since the settlement of 1815 they have remained united. On Nov. 11, 1942, after the successful landing of allied forces in N. Africa, Hitler sent Ger. troops into unoccupied France, and invited it. troops to occupy C., asserting that the move was necessary to forestall allied plans for an attack on the is. and on the S. coast of France. Pétain made a formal protest, but the Vichy Gov. made no show even of passive resistance. Fr. troops (non-Vichy) liberated C. on Oct. 4 (1943), Ger. consolidation on the is. having been prevented by the prompt action of local patriots before the landing of Free Fr. forces. The lt. part of the garrison held Bastia long enough to get their forces away. The conquest of C. by the Allies was a strategic blow against the whole Ger. position in Italy. C. is divided into four arrons., Ajaccio, Bastia, Corte, and Sartène. The prin. and cap. tn. is Ajaccio, the seat of the bishop of C. and the bp. of Napoleon. Bastia, a seaport on the E. coast, was the former cap. of C. The tn. dates from 1383 and derives its name from the Bastion of St. Charles, and under the Genoese it was long the chief stronghold in the N. of the is. and the residence of the governor. On the div. of C. in 1797 into the depts. of Liamone and Golo, Bastia remained cap. of the latter, but when the two were once more united, Ajaccio superseded Bastia. *An Account of Corsica*, by J. Boswell, appeared in 1768. See also Prosper Mérimée, *Notes d'un voyage en Corse*, 1840; F. Girolami-Carona, *Géographie générale de la Corse* (Ajaccio), 1893; R. Le Jolindre, *La Corse et les Corses*, 1904; J. M. Jacobi, *Histoire générale de la Corse*, 2 vols., 1833-1835; L. H. Caird, *History of Corsica*, 1899; C. de Cesari-Rocca and L. Villot, *Histoire de la Corse*, 1916, 1927; P. Allorge, *Histoire du peuplement de la Corse*, 1926; D. Archer, *Corsica, the Scented Isle*, 1929; A. R. Dugmore, *Corsica the Beautiful*, 1930; A. Ross and J. Minton, *Time was away: a Notebook in Corsica*, 1948.

Corsicana, cap. of Navarro co., Texas, U.S.A., on the Houston and Texas Central and the St. Louis S.W. railroads. It is a trading centre for cotton, wool, oil, and agric. produce. Pop. 15,200.

Corsite, variety of diorite (q.v.) found near Ajaccio in Corsica; known also as Napoleonite. It forms a beautiful ornamental stone on cutting and polishing, and is composed of anorthite feldspar, hornblende, and a little quartz.

Corslet, kind of cuirass or breastplate used to protect the body by soldiers in the sixteenth and seventeenth centuries. It was made of leather or of fine light steel chain.

Corso, It. word, meaning race or race-course, used alike of a slow procession of handsomely decorated equipages, and of the mad gallop of a frightened riderless horse. The word has been given to various streets, generally the main street, in some It. tns., through which processions frequently take place. The best known is the C. (anct. Via Flaminia) in Rome, which is the scene of the famous carnival.

Corssen, Wilhelm Paul (1820-75), Ger. classical scholar and philologist. In 1858-1859 he won the prize, awarded by the Royal Prussian Academy of Sciences, for a thesis on Lat. pronunciation and accent, with his *Ueber Aussprache, Lokalismus, und Betonung der Lateinischen Sprache*. Among his other works are *Kritische Beiträge zur Lat. Formenlehre* (1863); *Kritische Nachträge zur Lat. Formenlehre* (1866); and *Ueber die Sprache der Etrusker*, 2 vols. (1874-75).

Corstopitum, see CORBRIDGE.

Cort, Cornelis (1530-78), Dutch designer and engraver. He studied engraving with Jerom Cockx of Antwerp, and about 1565 he went to Venice and worked for Titian, executing copper-plates of 'St. Jerome in the Desert,' 'Prometheus,' 'The Magdalen,' and others. At Rome he founded a famous school of engraving. By his art he much increased the circulation of the works of Raphael, Titian, Clovio, Muziano, Barocci, and other painters.

Cort, Henry (1740-1800), Eng. iron-master, who invented a process, called puddling, of purifying iron, a process which has been superseded by the invention of Bessemer steel.

Cortazar, tn. of Mexico, in the state of Guanajuato. Pop. 9000.

Corté, tn. in central Corsica, situated on a steep rock with overhangs the Tavignano and the Restonica. Marble is found in the neighbourhood, and there is active trade in wine and timber. It is the centre of a great variety of excursions. Pop. 5000.

Cortés, name given in Spain and Portugal to the representative assembly of the nation. Formerly there were different C. representing various dists. of Spain, the chief being the C. of Castile and that of Aragon, each with its own constitution, which was frequently modified. During the Fr. invasion under Bonaparte, it framed a new constitution, known as the 'Constitution of 1812.' See SPAIN, *Constitution and History*.

Cortés, Hernán or Hernando (1485-1547), conqueror of Mexico. He was b. at Medellín, a vil. of Extremadura in Spain, and was first sent to study law at Salamanca. His high spirits and love of adventure led him westwards, so that in 1504 he sailed for Santo Domingo to join his relative, Ovando, governor of Hispaniola. In 1511 he distinguished himself under Velásquez in his expedition for the conquest of Cuba, and subsequently became alcalde in Santiago. In 1518 C. was chosen by Velásquez to command an expedition into the interior of New Spain (Mexico), which had just been discovered by Grijalva. He set sail on Nov. 18 with



HERNÁN CORTÉS

a fleet of seven vessels from Santiago de Cuba. Early in the following year he reached the R. Grijalva, and captured Tabasco, after a fierce fight with the natives. Velásquez, meanwhile, had revoked the commission of his lieutenant, but C. refused to turn back. He landed at San Juan de Ulloa, where he took many captives, one of whom, Marina, he made his mistress. She was of great help to him on his adventures, and acted as interpreter. Moving a little to the N. he founded the colony of Villa Rica de Vera Cruz, and then, marching inland, defeated the Tlascalans, and destroyed the tn. of Cholula, whose inhab. were plotting against him. C. and his men were now regarded as descendants of the sun, destined by prophetic tradition to come from the E. and subdue the Aztecs. For this purpose the Tlascalans and Cholulans joined him in a march on Mexico. On Nov. 8, 1519, C. entered Tenochtitlan, the cap. of Mexico, and was received with honour by the Aztec chieftain. But, hearing that the native leaders were conspiring against him, he captured Montezuma (or Motecuilzoma) by a trick, and held him as a hostage. In April 1520 C. heard of an expedition, headed by

Narváez, and sent by Velásquez against him, and set out with a small band for San Juan de Ulloa. He took Narváez prisoner and persuaded the Spaniards to join his standard. During his absence, however, the Aztecs had revolted against his lieutenant, Alvarado. In the revolt Montezuma lost his life, and C. returned to the city only to retreat with all his men on June 30, *la noche triste* (the unhappy night). C. drove off the pursuing Mexicans at Otumba, July 7, 1520, but retreated to Tlascala to recuperate. In the following year he laid siege to the stronghold of the Aztecs, and, after three months' fighting, he again entered their city. C. rebuilt it and filled it with Sp. colonists, and, using it as his headquarters, sent out expeditions to the Gulf Coast and to Tampico. His enemies in Spain and Cuba were at work, however, and in 1528 Estrada arrived to take command, and C. was obliged to return to Spain. There he was royally received and created marquis of the Valle de Oajaca. In 1530 he returned to Mexico, but, as he was no longer governor, he found that his schemes were continually being thwarted. In 1536 he explored the coast-line and discovered lower California. He returned to Spain in 1540, but obtained no redress for his grievances, though he was received with honour. He accompanied Charles V. on his disastrous expedition to Algiers, 1541. He died in retirement near Seville, and was buried there, but his remains were subsequently reinterred in Mexico. See W. H. Prescott, *History of the Conquest of Mexico*, 1843; the *Dispatches*, trans. G. Folsom, 1843; Sir A. Helps, *Life of Cortés*, 1871; F. A. Ober, *Hernando Cortez*, 1905; H. D. Sedgwick, *Cortés the Conqueror*, 1927; C. Walker, *Guatemala, Last of the Aztec Emperors*, 1934; and S. de Madariaga, *Hernán Cortés: Conqueror of Mexico*, 1942.

Cortland, co. seat of C. co., New York, U.S.A., on the Tioughnioga R. in a dairying and cattle-breeding region, with manufs. of wire netting, wire cloth, furniture, etc. Pop. 15,800.

Cortona, tn. and episcopal see of Italy, in the prov. of Arezzo, 69 m. S.E. of Florence. It is surrounded by the ant. Etruscan walls, still in fair preservation, and is one of the oldest cities of Europe. A medieval castle, the highest point of C., stands 2130 ft. above sea level. There is a cathedral dating from the eleventh century, and restored in the eighteenth century, which contains pictures by Luca Signorelli, a native of the tn. (1441). There are also old churches with paintings by Fra Angelico, Pietro da Cortona, and others. The museum contains many Etruscan curiosities. The Palazzo Pretorio, C.'s only important building to suffer damage in the Second World War, was blown up by the Gers. when they retreated. Pop. 32,000.

Cortona, Pietro (Berettini) da (1596-1669). It. painter and architect, so called from his bp., Cortona, his real name being Berettini. His prin. works are in the Barberini and Sacchetti palaces, Rome, and in the Pitti palace, Florence. His

'Nativity' attracted the notice of Pope Urban VIII., and he enjoyed the patronage of successive pontiffs. His architectural works include the façade of Santa Maria in Via Lata, and the church of San Martino (Rome), in which he was buried.

Cortoriacum, see COURTRAI.

Corum, see CHORUM.

Corumba, tn. and fortress of Brazil, in the prov. of Matto Grosso, on the r. b. of the R. Paraguay. It is an important trading centre and there are very large deposits of manganese. Pop. 8500.

Corundum, aluminium ore, consisting solely of the oxide, Al_2O_3 . It possesses a high sp. gr. and is only inferior to the diamond in hardness. It crystallises in the hexagonal system. The sapphire, oriental ruby, oriental topaz, oriental

tion, and cavalry and infantry barracks. C. was probably at one time a Phœnician settlement. In 1588 the Sp. Armada took shelter on its way to England in the harbour, and in 1598 the tn. was burnt by the Eng. under Drake and Norris. There is a monument erected to Sir John Moore, who fell here in 1809. Pop. (prov.) 916,000. (tn.) 105,000.

Corvallis, tn. in Oregon, U.S.A., seat of the state agric. college. Pop. 8300.

Corvée, term applied to unpaid and forced labour paid by a tenant to his lord, or by subjects to a state. The system of unpaid labour dates from the earliest times, and was fully developed in the republic of Rome. Instead of paying taxes, the citizens performed *operæ publicæ*, which consisted chiefly of keeping roads



THE HARBOUR, CORUNNA

emerald, and oriental amethyst are all forms of C., although the name is usually reserved for the coarser specimens. The precious forms, of course, owe their value to the lustre of their polished surfaces, and their beautiful colours. The ordinary forms are dull in appearance, however, but they vary in colour as do the precious ones; being green, blue, and red, inclining to grey. Emery is an impure form of C. containing oxide of iron. C. is used for cutting and polishing all gems except the diamond, which is too hard for it.

Corunna (Sp. La Coruña, Fr. La Corogne), cap. of the prov. of C. in Spain, situated on the bay of C. The tn. consists of an upper and lower part. The former contains the anct. buildings, and is still surrounded by its old walls and ramparts, but the latter, which started only as a little fishing vil., known as Pescaderia, has long ago outgrown it. The harbour lies on the E., is very commodious, and is protected by the forts of San Diego and San Antonio. Many foreign boats call in here on their way to S. America. A state tobacco factory is one of the chief industries, and the herring and sardine fisheries give employment to many of the natives. The exports include agric. produce, wine, and fish, while the imports are chiefly coal and manufactured goods. The tn. possesses two hospitals, a school of naviga-

and bridges in a state of good repair. The Rom. landlords could also demand free labour on their estates for a certain number of days from their tenants or *coloni*. The freemen also were under certain obligations as a condition of their freed state, and their *operæ officiales* generally consisted of unpaid work on their landlord's estate. In the Middle Ages the C. became a recognised part of the feudal system. The fixed services that the serf was obliged to pay regularly were called *operæ rigæ*. Those that were only demanded in times of exceptional stress were called *operæ corrogatæ*, i.e. services or works requisitioned, from Lat. *rogare*, to request. This term became corrupted into *corolatæ*, and later *corveïæ*, and finally developed into the present form C., which became the general term for all such unpaid labour. The tenants and serfs performed certain kinds of personal labour, such as working in the fields, threshing corn, etc., in payment or partial payment of rent, small allotments, called *mansî*, being distributed among them. As well as this, they performed public services, such as repairing high roads, bridges, churches, and castles, entertaining messengers, and carrying dispatches, as a sign of fealty to their feudal lord. C. could also include conscription, for in time of war they were

enlisted in their lord's army. C. existed in France till the time of the Revolution, of which it may be said to have been a cause. It was revised (1824, 1836, and 1871) under the name of *prestation*, when it was enacted that every able-bodied man is responsible for the condition of his local roads, and must give three days' labour or its equivalent in money to keep them in repair. C. has been from the earliest times used as a means of irrigating the canals and reaping the harvest. It is thought that the great pyramids were probably built by forced labour. By this means the Nile barrage above Cairo was constructed (1841-67), but C. labour was abolished under Brit. rule in 1891. *Consult* N. D. Fustel de Coulanges, *Histoire des institutions politiques de l'ancienne France*, 1875-92.

Corvette (Lat. *corbita*, a slow ship of burden, from *corbis*, basket), sailing warship smaller than a frigate, having three square-rigged masts and carrying her broadside guns under a covered deck. In the Second World War the term was revived for small escort vessels with anti-submarine devices. Large numbers of Cs. were built in E. U. and Canadian shipyards, and were instrumental in reducing losses from U-boat action in the W. Atlantic area.

Corvey, or **Korvey**, famous Benedictine abbey, near Hoxter, Westphalia, situated on the R. Weser. It was founded by the monks from Corbie, in France, in the ninth century, under the patronage of the Emperor Louis le Débonnaire. Its abbots were chosen from the princes of the Holy Rom. Empire. There is an interesting church dating from the seventeenth century. In 1811 its library of over 150,000 vols. was given to Marburg Univ. The abbey was under the direct supervision of the pope until 1793, when Pope Pius VI. converted it into a bishopric. It was secularised in 1803, and was held successively by Nassau, Orange, Westphalia, and Prussia.

Corvinus, Matthias, *see* MATTHIAS CORVINUS.

Corvisart-Desmarteis, Jean Nicolas, Baron de (1755-1821), Fr. physician, who is remembered especially for his contribution towards the knowledge of percussion. He wrote extensively on medical subjects, his works including *Aphorismes sur la connaissance et la curation des fièvres* (1799-1801); and *Nouvelle méthode pour reconnaître les maladies internes de la poitrine par la percussion de cette cavité* (1808).

Corvus, member of the family of Corvidæ, such as the rook, raven, jackdaw, and various kinds of crow.

Corvus (Raven or Crow), anct. S. constellation described by Ptolemy (second century A.D.). It consists of four prin. stars of the second and third magnitude, and is situated below Virgo, between Libra and Crater. The constellation is sometimes called Hydra or Corvus, as strictly ♀ contains part of the body of Hydra. Aratus (c. 270 B.C.) included Hydra, Crater, and C. in a single constellation.

Corvus, Marcus Valerius (c. 370-c. 270 B.C.), soldier famous in early Rom. hist. He obtained his surname, C., a raven, after fighting in single combat with a Gaul, 349 B.C., on which occasion he was assisted by a raven which settled on his helmet and flew into the face of his foe. He was twice dictator (342 and 301), and between 348 and 299 was consul six times.

Corwen, par. and mrkt. tn., a favourite resort for tourists and anglers, on the r. b. of the Dee, Merionethshire, Wales, 9 m. W.N.W. of Llangollen. Pop. 3000.

Cory, William Johnson (1823-92), Eng. poet, b. at Torrington, and educated at Eton, where he was subsequently a master. He was a brilliant writer of Lat. verse. His chief poetical work is *Ionia* (1858), containing poems in which he revealed a true lyrical gift.

Coryate, or **Coryatt**, Thomas (c. 1577-1617), Eng. traveller, son of George C., rector of Odcombe and a Lat. verse writer, b. at Odcombe, Somersetshire. He was educated at Westminster School and at Oxford, and became a court fool to James I. *Coryate's Crudities hastily gobbled up in Five Months' Travel* (1611) is an account of his travels on foot through France, Italy, Switzerland, Germany, and Holland, which began in 1608. He hung up the boots which he used on this tour in Odcombe church. In 1612 he set out again and passed through Constantinople, Greece, Alexandria, Cairo, Jerusalem, Babylon, Lahore, and Agra, but died at Surat. *See* A. à Wood, *Athenæ Orientalis*, ii., 169-92, 1813-20; McLehose's ed. of the *Crudities*, 1905.

Corybantes (Gk. κορυβαντες), priests of Cybele or Rhea, in Phrygia, whose worship they celebrated by dancing or wild, ecstatic orgies to the accompaniment of the drum and cymbal. Besides the power of music the C. exercised also cures by magic and other arts of superstition. They were also credited with prophetic powers.

Corydon, co. seat of Harrison co., Indiana, U.S.A., on Indian Creek, 20 m. S.W. of Louisville, Kentucky; manufactures wagons and building and lithographic stone. Pop. 2000.

Corygaun, or **Korigaun**, tn. of India, in the Bombay presidency, on the Bhime, 16 m. N.E. of Poona. Here 800 of the E. India Company's sepoys under Capt. Staunton kept 25,000 Maharrats under the command of the peshwa himself in check on Jan. 1, 1818.

Corylus, genus of Betulaceæ, contains seven well-known species, which grow in N. lands. *C. avellana* is the common hazel-nut found in Europe, Asia, and America; *C. colurna*, the Constantinople nut of Asia Minor; *C. rostrata*, the horned hazel-nut of the Carolinas. There are many varieties of *C. avellana* which yield the cob-nuts or filberts used as dessert.

Corypha, genus of tropical palms, contains six species with gigantic fan-shaped leaves. *C. umbraculifera*, the tala or talipot palm, is a native of Ceylon, which serves sev. useful purposes. The trunk reaches a height of 100 ft., and the leaves are 14 ft. broad and 18 ft. long; fans and

umbrellas are made from the leaves, which are also used in thatching and employed as writing material; while the pith of the trunk furnishes a sort of flour from which bread is made. *C. talliera* is a stately species which inhabits Bengal and is known as the fara or talliera; the natives write on the leaves with a stool style.

Coryphæna, genus of acanthopterygious fishes, commonly known as dolphins, represents the family Coryphenidae, which is nearly related to the mackerel family. The species are large and brilliantly coloured, with hues of metallic yellow, blue, and silver; their bodies are elongated, compressed, and covered with small scales. In diet they are carnivorous and feed largely on flying fish. The length to which they usually attain is about 6 ft. *C. hippurus* inhabits the Mediterranean.

Coryphæus (Gk. *κορυφή*, head), leader of a Gk. chorus. Hence the word is applied to any leader in the realm of science or art. At Oxford the word is used to denote the assistant of the choragus in the musical praxis, founded by Dr. Heather.

Corystes, brachyurous crustacean, found in the seas of Europe. *C. Cassirelaunus* is a crab commonly seen on the shores of France and England, especially at Plymouth, and the carapace is marked like the face of a human being.

Coryza, catarrh of the mucous membrane lining the nasal passages, commonly called cold in the head. See CATARRH.

Cos, is. in the Ægean Sea. See KOS.

Cosa, Juan de la (c. 1450-1510), Sp. navigator and cartographer, thought to have been born at Santona in Calabria, and died at Tabasco in Darien. After having explored parts of the W. coast of Africa, he accompanied Columbus on his famous voyage of discovery in 1492, acting as pilot. He held the same position under Alonso de Hojeda in 1499, and in 1501 himself led an expedition in N. America, and in 1509 was appointed *alguacil mayor* over Uraba (Darien). He was killed in the following year during a skirmish between the Spaniards and the Indians. He executed two very interesting coloured maps on vellum, one marking the Sp. dominions acquired in Africa in 1500, and the other showing the lands discovered by Columbus and his successors.

Coghuc, George (1866-1918), Rumanian poet, b. at Hordou in Transylvania. He made trans. of the *Æneid* and of Byron's *Mazeppa*. He is chiefly read for his lyrics, which appeared in *Balade si Idile* (1883, 1893) and *Fire de Tori* (1896).

Coscinomaney (Gk. *κόσκινο*), divination by means of a sieve and a pair of shears, employed in ant. times for the discovery of thieves and other suspected persons. The sieve was supposed to tremble or move round when the name of the guilty person was mentioned.

Cosecant, **Cosine**, **Cotangent**, see under TRIGONOMETRY.

Coseguina, or **Conseguina**, volcano of Nicaragua, near the gulf of Fonseca, not far from the Pacific Ocean. Altitude

3830 ft. The eruption of 1835 was one of the greatest ever known in geological hist.

Cosel (Polish *Koźle*), tn. of Silesia, on the R. Oder, 26 m. S.S.E. of Oppeln. It has flour mills; celluloid was, however, its chief manuf. before 1939. Pop. 10,700.

Coseley, suburb of Wolverhampton, Staffordshire, England. In the vicinity there are coal and iron mines. Pop. 25,000.

Cosenz, **Enrico** (1812-98), It. soldier and politician, b. at Gaeta. He fought against the Austrians in Upper Italy (1848), distinguishing himself at the defence of Venice. On its surrender, he took refuge in Turin, but returned to join one of Garibaldi's regiments, The Hunters of the Alps, of which he became colonel in 1859. Under the dictatorship of Garibaldi he was appointed minister of war, and commanded an attack on Rome in 1870. From 1881 till 1893 he was chief of the general staff of the It. Army.

Cosenza (ant. *Consentia*, city of the Bruttii), 1. Tn. and archiepiscopal see of the prov. of Calabria, S. Italy, situated at the foot of La Sila, 33 m. N.W. of Catanzaro, between the Crati and the Iusento, and commanded by an old castle. The old part of the tn. contains steep, narrow streets, and is most unhealthy, while the modern part has good buildings and thoroughfares. The Gothic cathedral is on the site of an older one which was destroyed by earthquake, 1184. There are two academies of science, and the manufs. are of steel and iron, also pottery. C. was taken by the Allies, advancing from the toe of Italy, in Sept. 1943, when the civic library was badly damaged, and a considerable number of books were destroyed; while the cathedral and the church of S. Francesco sustained roof damage. Pop. 40,000. 2. Prov. of Calabria, S. Italy, which includes the N. part of the Calabrian peninsula between the gulf of Taranto and the Tyrrhenian Sea. It is mostly mountainous. The mts. are densely covered with forests of oak, chestnut, and beeches, and tin, lead, silver, and other minerals are found there. The chief products are rice, corn, olive oil, wine, fruits, liquorice, rock-salts, silks and cotton. It has been often mentioned by classical authors, e.g. by Varro, who speaks of its apple-trees fruiting twice a year, and by Pliny, who praises its wine. Pop. 546,000.

Cosgrave, William Thomas, president of the executive council of the Irish Free State, 1922-32, was b. in 1880, son of Thomas Cosgrave, tn. councillor, Dublin. He was educated at the Christian Brothers' School, and engaged in the grocery trade; became a member of the Dublin Corporation in 1909, and from 1916 till 1922, when he retired from the corporation, was chairman of its finance committee. In 1913 he joined the Irish volunteers, and sided with the rebellious section in Aug. 1914. He was in the Easter rising in Dublin in 1916; and, on capture, was detained in Frongoch Camp, Merioneth, till Christmas. In 1917 he was elected Sinn Féin M.P. for Kilkenny city; and from Dec. 1918 till 1922 he was M.P. for the N. div. of Kilkenny co. To the first legalised Dail

Eireann he was elected in 1922 for cos. Carlow and Kilkenny, which he represented till 1927; but in 1919 he joined those members of Parliament who constituted themselves the revolutionary Dail, and held the post of minister for local gov. in the revolutionary cabinet—consequently he was among the proscribed in the time of the Black-and-Tans. From Jan. 1922 he was minister for local gov. in the Irish Free State set up by the treaty. He acted as deputy for President Griffith during the absence of the latter in London in 1922; and, after Griffith's death in Aug. and the assassination of his successor Michael Collins (*q.v.*) the same month, C. was chosen president. In 1923 he represented the Irish Free State at the League of Nations Assembly and at the Imperial Conference. He became member for Cork in the Dail elected 1927; and in 1928 he signed the Kellogg Pact and visited U.S.A., where he was received by the president, and Canada. After de Valera's party, Fianna Fail, came into power in 1932, he led the Fine Gael opposition.

Coshery, or **Coshering**, was the ancient feudal right of an Irish chief to quarter himself and his retainers on his tenantry at his own pleasure.

Coshoceton, city and co. seat of C. co., Ohio, U.S.A. It ships coal, grain, flour, livestock, and wool, and manufs. paper, glass, advertising novelties, etc. Pop. 11,500.

Cosimo (Cosmo) I. (*d.* 1574), duke of Florence, afterwards grand duke of Tuscany, was the son of Giovanni de' Medici. The elder branch of the house of Medici had become extinct, and C., who was descended from a collateral branch of the house, was proposed as successor and supported by the Emperor Charles V. C. defeated his enemies at Montemurlo and became absolute lord of Florence. He was a harsh and cruel ruler, but succeeded in establishing the independence of Tuscany. In 1552 he added Piombino and the is. of Elba to his estates, and in 1555 captured Siena, which, however, was allowed to retain its municipal institutions. In this way he united Tuscany under one gov., and in 1569 he received from Pius V. the title of grand duke. C. was a patron of art and literature, and founded the Florentine academy and the Academy del Disegno, and restored the univ. of Pisa.

Cosimo de' Medici, *see* MEDICI.

Cosimo, **Piero di** (1462–1521), It. painter, b. at Florence. He was a pupil of Cosimo Rosselli, and afterwards the master of Andrea del Sarto. Leonardo exercised great influence over him, but he was somewhat eccentric, fantastic in design, and his figures wanting in accurate proportions; his colours were often admirable. His masterpiece was his 'Conception,' now in a gallery in Florence, where are also four mythological pictures, and a Madonna. His 'Perseus and Andromeda' is full of fine detail. Some of his other works are 'Death of Procris,' in the National Gallery, London; 'Coronation of the Virgin,' in the Louvre, and 'Christ and the Baptist,' in Berlin.

Cosin, John (1594–1672), bishop of Durham. He first became known as an author in 1627, when he pub. his *Collection of Private Devotions*. In 1634 he was made master of Peterhouse, Cambridge; in 1640 vice-chancellor of the univ., and dean of Peterborough. For nineteen years he was an exile in France, being denounced by the Puritans for his extreme theological views, though opposed to popery, and was deprived of his benefices. But at the Restoration he received his preferments back, and became bishop of Durham, 1660.

Cosine, *see* TRIGONOMETRY.

Coslin, *see* KOSLIN.

Cosmas Indicopleustes, merchant and traveller of Alexandria, who lived during the sixth century. During his early life he visited Abyssinia, W. India, Ceylon, and other places. He eventually became a monk, and during his seclusion wrote in Gk. a work in twelve books called *Topographia*, 548. This was trans. in 1897 into Eng. by the Hakluyt Society. In the work he propounds absurd theories as to the shape of the earth, denying that it is round, and upholding the scriptural account of the world. Some people think he was a Nestorian.

Cosmas and Damian, patron saints of physicians, were born in Arabia in the third century, and educated there. They are supposed to have practised in Sicily, but were tortured and killed under the persecution of Diocletian in 303. In 1279 a college of surgeons was founded in Paris by Pitard (who had accompanied St. Louis to Palestine as his surgeon), which was under the protection of St. C. and St. D. and became known later as the Collège de St. Côme.

Cosmetics (Gk. *κοσμήν*, to adorn), word applied to all chemical preparations used for improving the appearance of skin, hair, and eyes, etc. Face powders consist of zinc oxide, Fr. chalk, and orris root finely powdered and perfumed. Some C. are comparatively harmless, while others are more or less poisonous, and dangerous to use. Hair C. are composed of lard and white beeswax, to which is added a suitable perfume. A distinction may be made between hygienic C. which have a health-giving, refreshing, or beautifying effect (*e.g.* eye-washes, creams, lotions, eau-de-cologne, bath-salts, soap, anti-sweat preparations, toothpaste) and æsthetic C., designed to disguise or hide real or supposed bodily deficiencies (*e.g.* eye-brow pencil, mascara, rouge, depilatories, hair-dye, lip-stick, nail-polish or lacquer, powder, paint).

Cosmic Radiation. Gases are nearly perfect insulators of electricity under ordinary circumstances, and owe what little conductivity they possess to the presence of relatively small numbers of charged molecules or ions. Some ions are continually produced in a gas by radioactive materials in it or in the walls of the containing vessel, but experiments dating from 1903 (Rutherford, McLennan) showed that not all the ions are produced in this way, and that some are due to the action of an extremely penetrating

radiation capable of passing through many feet of lead or thousands of feet of water. This radiation is now called the C. R., and has a penetrating power enormously greater than that of X-rays or any other known radiation. Its source is at present uncertain, but it comes from outside the earth's atmosphere, and almost certainly from outside the solar system. Its intensity at high latitudes is greater than at the equator, and at any locality the ionisation produced by it increases with altitude to about 15,000 ft. and then diminishes again. The primary radiation entering the atmosphere apparently consists chiefly of protons, or positively charged hydrogen atoms, travelling at enormous velocities. In the atmosphere these produce showers of mesotrons, particles whose mass is about one-ninth that of a proton, and bearing either positive or negative charges of electricity. After short lives of a few millions of a second the mesotrons spontaneously disintegrate, producing electrons of high energy. These ionise the air through which they pass. The means by which the protons acquire their enormous velocities are at present obscure. See P. M. S. Blackett, *Cosmic Rays*, 1936; R. A. Millikan, *Cosmic Rays and Mesotrons*, 1939; J. G. Wilson, *About Cosmic Rays*, 1948.

Cosmogony, theory of the origin of the universe and its inhab., and in all races except among the very lowest type of savage some theory is found in their mythology or theology. There is a surprising variety in the various explanations, the only common ground seeming to be that water is usually regarded as the starting-point, from the depths of which the land has been drawn up by some supernatural power. Among other conceptions may be mentioned that of the Egyptians who conceived of a world egg, and the Hindu tortoise supporting elephants supporting the world. Then the Polynesian conception involved an air god Tangaloa, hovering over the waters. But in the Babylonian C. deciphered by George Smith, and also perpetuated in the Gk. of Berosus, we arrive at startling similarities to the creation story as told in Genesis 1. The Zoroastrian conception involved a personal deity creating at his own free will. Again, one of the old Phœnician C. refers to organic matter as being due to spontaneous emanations. Modern cosmogonists are divided naturally into two great camps, according as they are Theists or Pantheists. A belief in Theism almost inevitably leads to a C. which explains the creation of matter and order and life, as being the outcome of the omniscient will. Pantheism, on the other hand, will lead to a belief in the universe as being itself the deity, and this will lead to a belief in matter as having existed from eternity. Apart from these C., the problem, as narrowed down to the origin of our own globe, and its system, and similar systems, has occupied men's minds considerably. Laplace, on observing the motion and relationship of the planets, was able to lay down the founda-

tions of the nebular theory or hypothesis (q.v.) for which Herschel collected so many proofs, and of which physicists are not altogether sceptical even to-day. Of course, another theory is that the earth has originated from meteorites. Thus, in so far as it touches modern science at all, it can be seen that the tendency would be to trace backwards the causes and effects thus reaching back to the early stages in cosmic growth, but not to the actual creation itself. This after all was the standpoint of the old philosophies, for Plato recognised a personal creator, and Aristotle postulated an uncaused cause. Democritus, on the other hand, in strange similarity to some modern scientists, conceived a self-created universe, which sprang from a fortuitous concourse of atoms. See also ADAM, CREATION, MATERIALISM, THEOGONY, HEGEL, and the various religions. See J. C. Smuts, *Holism and Evolution*, 1926; Sir J. Jeans, *Astronomy and Cosmogony*, 1929; W. R. Inge, *God and the Astronomers*, 1933.

Cosmology, variant of cosmogony, both terms denoting an account of the origin or evolution of the universe or of its orderly development out of a primordial chaos. The word cosmogony, however, is now usually limited to those mythological accounts of the genesis of the world and of mankind which have no more than a historical or anthropological interest, while C. is applied to all those accounts which have a more scientific or philosophical value. Philosophy, as a term of general application, was not restricted, by Aristotle or his successors, to logic, aesthetics, psychology, and ethics, and he includes under that title all his physical inquiries. After the synthesis of knowledge by Aquinas in the Middle Ages the term philosophy ceased to be applied to inquiries concerned with the particulars as such, and the details, e.g. of physics, were left to the scientific specialists, while philosophy limited its inquiries to the relation of the physical universe to the ultimate ground, origin, or author of things. This inquiry was long entitled rational C., and may be said to be part of the general science of metaphysics. C., as defined above, may be illustrated by some of the more widely known attempts by philosophers or scientists to explain the origin or evolution of the world from chaos or formless void. Empedocles estab. earth, air, fire, and water, as the four elements (though the word element is not used by him. This, in his view, explained the infinite variety of the world, and generation is merely change of composition; Anaxagoras differed from his predecessors in regarding mind (*nous*) as a substance which enters into the composition of living things and distinguishes them from dead matter. He was impressed by the fact that the movement of the elements was not haphazard, but gave birth to an ordered and harmonious world. With the Manicheans the forming of the world is in itself the beginning of the deliverance of the 'imprisoned elements of light,' and the world is represented as an orderly structure of various

heavens and various earths, which is borne and supported by the aeons, the angels of light; and in the sun dwells the primal man himself, as well as the glorious spirits which perform the work of redemption; while in the moon the mother of life is enthroned. According to Descartes God created matter and motion and then left them to work out their own salvation independently. He supposes the existence of matter and the laws of motion, and then concludes that if all of this had been created by God, the resulting world would have resembled our world, including the planets, their forms, sizes, organisation, the laws of gravity, the nature of light, and all the other elements with which we are familiar. Herschel thought that gravity shows that bodies are urged downwards by some force or effort, or that there is a will existing somewhere directing the action; and he attributes consciousness to this will—which consciousness Schopenhauer denies. Kepler's idea of the universe, like the Pythagorean cosmos, was threefold—consisting of the centre or sun, the surface or sphere of the fixed stars, and the intermediate space occupied by ethereal matter. See also NEBULAR HYPOTHESIS.

The cosmological argument for the existence of God is a form of first-cause argument, which is itself derived from Aristotle's argument of the unmoved mover. The first-cause argument is simple—it points out that everything finite has a cause, which in turn had a cause, and so on. This series of previous causes cannot be infinite, and the first term in the series must itself be uncaused, since otherwise it would not be a first term. There is therefore an uncaused cause of everything, and this is obviously God. The argument takes a somewhat different form with Leibniz: he argues that everything in the world is 'contingent,' i.e. it would be logically possible for it not to exist. According to him everything has a sufficient reason; therefore the universe as a whole must have a sufficient reason, which must be outside the universe; this sufficient reason is God. The ultimate assumption of his argument is that the forces of the universe are in the hands of a perfectly wise Intelligence, and that, as in man there is a rational power of initiation and guidance, so in the world as a macrocosm there is a primal reason which governs the movements and co-ordinates them to a desirable end. Kant, however, holds that this cosmological argument depends on the ontological. If the existence of the world can only be accounted for by the existence of a necessary being, then there must be a being whose essence involves existence, for that is what is meant by a necessary being. But if it is possible that there should be a being whose essence involves existence, then reason alone, without experience, can define such a being, whose existence will follow from the ontological argument, for everything that has to do only with essence can be known independently of experience.

C. also embraces the biological specu-

lations of Darwin respecting the ultimate origin of living things as influencing anthropological speculation generally, and the extension of his concept of self-preservation beyond the organic world to the cosmos as a whole. Coming to the speculations of Darwin's contemporaries we may mention Czolbe's mechanistic view of the world order, which he combined with teleological conceptions of the world. Lotze defends the mechanical view of the world as worked out by modern science, applies the mechanical method to all depths of phenomena, and attempts to apply the method to the question of the genesis of the world and its order. Metaphysical teleology also describes von Hartmann's system: to him the world is a manifestation in time of an ontological principle, styled the unconscious, which is at once will and intelligence. Finally, we may notice the 'emergence' of world order or 'emergent evolution' of Samuel Alexander—the emergence of totally new things from combinations of the old. In recent years the term C. has been applied to the mathematical concept of universal space-time developed by Einstein from the Newtonian system and further elaborated by de Sitter, Eddington, and Milne. See A. K. Rogers, *A Student's History of Philosophy*, 1901; A. E. Taylor, *Elements of Metaphysics*, 1903; S. Alexander, *Space, Time, and Deity*, 1920; A. N. Whitehead, *Process and Reality: an Essay in Cosmology*, 1929; H. Macpherson, *Modern Cosmologies*, 1930; Sir A. Eddington, *The Expanding Universe*, 1933; E. A. Milne, *Relativity, Gravitation, and World Structure*, 1935; J. A. McWilliams, *Cosmology: a Text for Colleges*, 1939; G. Lemaître, *L'Hypothèse de l'atome primitif. essai de cosmologie*, 1946; B. Russell, *A History of Western Philosophy*, 1947; G. J. Whitrow, *The Structure of the Universe*, 1948.

Cosquin, Emmanuel (1841-1922), Fr. folklorist and lawyer, native of Vitry-le-François. C. is chiefly famous for his writings on folklore, which appeared in *Romania*, and were pub. in book form, *Contes populaires de Lorraine*.

Cossa, Pietro (1834-81), It. dramatist, b. in Rome. He taught in a school at Leghorn, and wrote *Mario, Sordello, Monaldeschi, Puschni*. His tragedy, *Nero* (Eng. trans. by F. E. Trollope, 1870), was acted with success, and after this he continued to write classical plays, such as *Cleopatra, Messalina, Cecilia, Paulo e il suo Secolo*. C.'s own favourite comedy; other works: *Teatro Poetico* (in 7 vols.), and a vol. of lyrics. See life by Trevisani; and Arcari, *Di P. Cossa e del Dramma in Italia*.

Cossacks (Russian *Kozak, Kazak*), name which seems to have had various meanings assigned to it, among them 'an armed man,' or a freebooter, but came to designate a certain section of the Russians who were invested with military powers. They seemed to be a people of mixed origin, partly Tartars and Poles, but principally Russian. The first seem to have come into prominence during medieval times, and they were employed by the rulers of

Poland to defend their frontiers, as they were a warlike people and quite suitable for the task. The Cossack community was divided into ten *voiskos*, and the *stanitsa*, or vil., is the centre of their community life. All men were compelled to military service, which lasted for twenty years or longer. They were thus able to form themselves into military bands which were at the service of the Russian Gov. when needed. Their education stood at a high level as compared with that of the other Russians. Their chief occupation was agriculture, though they were also engaged in cattle and horse breeding. The Don C., one of the two chief branches of this people, settled first in the land round the R. Don, and afterwards round the Dnieper, these being known as the Zaporogian C. Later on other sections of these C. were formed—from the sixteenth century onwards—among them those who settled in the Kuban valley, those of the Volga, the Ural R., and Siberia. The Little Russian C., or the C. of the Ukraine, were regularly estab. by Stephen Bathory, king of Poland, during the latter half of the sixteenth century. During the next century, however, they were unjustly treated by the Poles, and resolved to rise against this tyranny. This they accordingly did, and their leader Chmielnicki organised the great rising of 1648. He was at first entirely successful, but eventually put himself and his Cossack followers under the protection of the tsar of Russia. The Cossack pop. numbers considerably over 2,000,000.

During the course of the First World War the C. distinguished themselves by their customary *elan* throughout the campaign on the E. front, and in the Middle E. In the heavy fighting on the Sty and about Kovel in 1915 the C. rendered good service for the Allies, while the Kuban C. also distinguished themselves on the Armenian front. In May 1917 a detachment of C. under Sotnik Gamaly was sent by Gen. Baratoff to join the Brit. forces in Palestine, via Kermanshah. After the overthrow of the tsar the C. became a power to be reckoned with and republican agitators were cautious in their dealings with them. At the congress of Workmen's Councils in 1917 resolutions were passed for the creation of a special Cossack army and for the granting to all C. the lands which happened to be in their hands. When Kerensky (*q.v.*) felt that his power was declining he appealed to the C. for support against the Bolsheviks, but the C. refused because he had previously treated them with contempt. This led to his downfall. The Don ter. was the theatre of campaigns in 1917 and 1918 between the Bolsheviks and the volunteer army of Alaxeev (*q.v.*) and Kornilov. Public opinion on the Don, sedulously fomented by Ger. agents, was drifting strongly to the left, and Kaledin, the hetman of the Don C., though sympathetic towards the whites or volunteers, could do little to help the latter. The fever of revolution spread among the C., and there was a tragedy in every family

where the children were Bolshevik, and the fathers counter-revolutionaries. With the advance of the Bolsheviks on Novocherkassk, the situation of the Don seemed hopeless, and Kaledin, having lost trust in his C., shot himself. But the faith of the volunteer units of the whites in their leaders Kornilov and Alaxeev remained unshaken by misfortune, and they now began from this part of the country their campaign for the 'salvation and regeneration of Russia,' the campaign commencing with Kornilov's march on the Kuban (Feb. to March, 1917). But Kuban had now become predominantly Bolshevik, the Kuban Gov. had taken refuge in the hills, and Kornilov found all manner of difficulties in his projected attack on Ekaterinodar. When the attack did take place Kornilov was killed by a shell which burst in the room of a house in which he had his headquarters. The whites thereafter had to march back to the Don, and, in the interim, made all preparations for reorganising their forces for a second march on the Kuban. The army was increased by volunteers from 12,000 to 100,000, and though the Bolsheviks were now all-powerful in Odessa, the Crimea, and the Ukraine, and their navy was concentrated on Novorossiisk, so great was the enthusiasm of the whites or volunteer army, under the spell of the wizardry of the posthumous fame of Kornilov, that in their second advance on the Kuban they eventually captured Ekaterinodar (Aug. 2). A series of engagements followed later at Armavir in Oct., but enough had now been accomplished by the volunteer army in the Don ter. to make the issue as between the whites and the reds throughout Russia an open one for some time. The sequel came only in 1919 with the death of Kolchak and the defeat of Denikin (*see also* DENIKIN, KOLCHAK, KORNILOV). Although the C. were not in favour of Bolshevism, they soon gave up their anti-Bolshevik policy and returned to their homes. The ter. of the C. of the Don was declared a republic in 1918, but now forms part of the Rostov and Stalingrad regions of the R.S.F.S.R. Cossack cavalry provided mobility in the difficult task of resisting strongly mechanised Ger. assaults in the Caucasus region in July-Sept. 1942, especially as they were fighting on their own ground in defence of its fields and vila. *See* R. von Erckert, *Der Ursprung der Kosaken, vorzüglich nach neuesten russischen Quellen*, 1877; A. H. Springer, *Die Kosaken*, 1877; W. Cresson, *The Cossacks*, 1919.

Cosseir, or Kossel, seaport tn. situated on the W. coast of the Red Sea in upper Egypt. It possesses a citadel, and goods from Egypt to Arabia, or vice versa, are sent through this tn. Pop. about 3000.

Cossimbazar, *see* KASIMBAZAR.

Cossus, genus of lepidopterous insects, is typical of the family Cossidae, the goat-moths or carpenter-worms. The larva is a wood-borer, and the pupa is enclosed in a cocoon. *C. ligniperda* is one of the largest of Brit. moths, measuring from 2 to 4 in. from tip to tip of the expanded wings. The insect resides in and feeds

upon the wood of the oak, poplar, aspen, and willow, and the caterpillar emits a very disagreeable odour.

Costa, Claudio-Manoel Da (1729-90), Brazilian poet, native of Marianno, Minas Geraes. His two vols. of poetry, some written in Portuguese and It., gained for him a reputation. The poem *Villa-Rica* is noted for its historical matter. His intimacy with Ribeiro caused him to be implicated in the political agitation of 1789, and he was imprisoned at Villa Rica, where he died, as is supposed, by poison. See S. Romero and J. Ribeiro, *Compendio da Historia da Litteratura Brasileira*, 1909.

Costa, Isaac Da (1798-1860), Dutch poet and theologian of Jewish descent, was educated at Amsterdam and Leyden. His first great poem, *De Verlossing van Nederland*, appeared in 1814, and seven years later a collection of romantic poems, *Poezy*, placed him in the front rank of national writers. In 1822 he became a Christian, and was thenceforward an ardent supporter of his adopted faith, writing many theological as well as poetical works. He also trans. the *Persians* and *Prometheus* of Æschylus, and ed. the poems of Bilderdijk, his literary foster-father.

Costa, Lorenzo (1460-1535), It. painter, native of Ferrara. He belongs to the Bolognese school. His celebrated picture 'Madonna and Child,' besides frescoes, are in the Bentivoglio chapel in the San Giacomo Maggiore. His pupil, Francia, was much influenced by him, and both worked in the chapel of St. Cecilia. He went to Mantua in 1509, and was patronised by the Marquis Francesco Gonzago. Most of his best paintings are at Bologna: the 'Madonna and Child enthroned' hangs in the National Gallery, London. See J. Crowe and G. Cavalcaselle, *History of Painting in Italy* 1902.

Costa, Sir Michael (1810-84), musical conductor and composer, son of a Spaniard, b. in Naples. He came to England, conducted Zingarelli's *Cantata Sacra* in Birmingham (1829), and settled in London in the next year, when he produced *Kenilworth*. C. conducted at Covent Garden and at the Philharmonic concerts, besides at other musical festivals in the provs. Although he was the greatest conductor of his time, his compositions are now forgotten. Some of C.'s works are *Ecco quel fiero istante*, *Alma*, *Don Carlos*, and *Eli and Naaman*.

Cost Accounting is the term applied to that system of accounting by which the cost of production or service rendered at any particular stage in the manu. or part-manu. of any commodity is ascertained. It differs from the ordinary system of accounting in that the latter simply gives the results of the business or section of the business as a whole, without attempting to dissect the cost of manu. or service rendered at any particular period in the course of manu. The two systems are, however, usually worked concurrently by independent staffs, although to bring out the best of both systems some sort of liaison is necessary. The value of the C. A. system lies

in the results of costs that are put on record, and so are always handy for reference for comparative purposes. It provides a safe check against wastage, either in material or time, and is a sure means of discovering that section of a business which is not pulling its weight. It would, of course, be impossible to formulate any system of C. A. that would be applicable to all businesses. Indeed it would be safe to assert that each large business, apart from fundamentals, has its own system, that system which has been found from experience to be best adapted to its own particular requirements. The cost of a product or job would be obtained from the following details: (1) The prime cost, which would embrace cost of raw materials and wages. (2) Shop expenditure, which would embrace foremen's wages, power, plant, maintenance, etc. (3) Overhead charges, which would embrace cost of distribution and administrative charges.

Costanzo, Angelo di (1507-91), Neapolitan historian and poet, b. at Naples. His most important work was his *Historia del Regno di Napoli, 1250-1489* (1581-82), which was written in clear style, and was the work of over thirty years.

Costa Rica, the most S. state of central America, bounded on the N. by Nicaragua, on the E. by the Caribbean Sea, by Panama on the S.E. and S., and by the Pacific Ocean on the W. Lies between 8° 17' and 11° 10' N. lat. and from 82° 30' to 85° 45' W. long. Its area is estimated at 23,000 sq. m., and it is divided into seven provs.: San José, Alajuela, Heredia, Cartago, Guanacaste, Puntarenas, and Limón. The Atlantic coast, with the exception of Port Limón, has few indentations, but along the Pacific shore are the two large gulfs of Nicoya and Dulce. Across the country S.E. to N.W. extends the Sierra Talamancá, a continuation of the Cordillera of Chiriquí. Some of the peaks attain a great altitude, the highest being over 12,500 ft. There are a number of volcanoes, including Orosí (5,200 ft.) and Poás (8,670 ft.). The only active ones are Irazú (11,500 ft.) and Turrialba (10,900 ft.). The rivers are not useful for navigation, the chief being the Revantagón and Turcoles. The San Juan partly separates C. R. from Nicaragua. The country is rich in minerals. Gold, silver, copper, zinc, nickel, lead, coal, mercury, and iron are found. The chief industry, however, is agriculture, the soil being fertile and the climate mild and temperate. The region of concentrated settlement in the highland forms the nucleus around which the C. Rican state is organised. It is a region of expanding pioneer settlements, of people vigorously at work transforming empty country into a country of farms and permanent homes. Coffee is cultivated to a very large extent, and on the success of the crops depends largely the revenue of the country. Coffee forms 50 per cent of the total exports, and in 1944 it was estimated at 22,400 metric tons. Bananas rank second in importance, forming about one-third of the total export trade, but they have

somewhat declined owing to the havoc caused by the 'Panama disease.' Vanilla and sarsaparilla are grown; sugar is still exported, but not in such great quantities; while cacao is rapidly increasing in importance. There is considerable trade in timber and cattle. In the wooded dists. are found mahogany, india-rubber, ebony, Brazil-wood, cedar, and oak. There are thousands of square miles of public lands in C. R. that have never been cleared, on which can be found quantities of virgin rosewood, cedar, mahogany, and other cabinet woods. The Second World War temporarily stimulated the collection of

1917, however, Gen. Frederico Grana-dos ousted Alfredo Gonzalez from the presidency and himself assumed office. President Wilson of the U.S.A. persistently refused to recognise his claims, and when C. R. followed the action of the states by breaking with Germany in May 1918, he totally ignored the gov. as then formed. His opposition extended even to excluding representatives from C. R. to the League of Nations, but the state later became a member of the League. In the presidential elections of Feb. 1948, the National Union leader, Otilio Ulate, decisively defeated Calderon, candidate



COSTA RICA: THE VOLCANO OF IRAZÚ

E.N.A.

wild rubber, the estab. of plantation rubber on 3000 ac., and the planting of abaca or hemp. The chief imports are cotton goods, rice, chemical products, tanned leather, fats, industrial machinery, mineral oil, railway materials, and paints.

C. R. was discovered by Columbus in 1493, and colonised in 1502 or 1530. Its political life, like that of many of its neighbouring states, has been unsettled. It formed a part of the captain-generalcy of Guatemala until 1821, when for two years it was connected with Mexico. From 1824 to 1839 it formed part of the federal republic of the states of central America. It was not till 1848 that C. R. was fully estab. as a republic. C. R. has been involved in sev. boundary disputes, the first of these, with Nicaragua, being settled by the president of the U.S.A. in 1888; and with Colombia, in 1921. The dispute with Panama was also settled in 1921, after Panama had entered and held the ter. to which it laid claim, but diplomatic relations were not resumed until 1928. Internally C. R. has had a much more pacific hist. than most of the central Amer. states during recent years. In

of the Communists, but the gov.-controlled congress declared the election void and refused to give Ulate his credentials as president-elect. In the ensuing civil war the gov. was overthrown and a junta set up to govern pending the adoption of a new constitution. In the elections of December (1948) elections were held for a constituent assembly and Ulate's National Union party won three-fourths of the seats. Colonel Jose Figueres, as provisional president, has governed the country since the suppression of the civil war in May (1948). The C. Rican Army was abolished on Dec. 1 (1948) on the eve of C. R.'s ratification of the Inter-Amer. Treaty of Reciprocal Assistance drawn up at Rio de Janeiro, but Figueres immediately ordered a general mobilization when C. R. was invaded from Nicaragua by forces led by supporters of the exiled former president, Rafael Guardia, seeking to overthrow the military junta of Figueres. The invaders seized the tn. of La Cruz, 5 m. inside the border, and pushed inland to Liberia. C. R. and Nicaragua signed a pact of friendship in Washington on

Feb. 21, 1949, both countries having agreed to a peaceful settlement of their dispute. C. R., like Colombia, has been able to make use of its contrasted regions as a source of strength; it is one of the few countries in Lat. America which have been able to develop a strongly coherent national life. To a smaller degree than in most other countries has the political and economic power been concentrated in the hands of a very few, and for this reason C. R. is an example of an effective democracy, affording a notable example of what can be done in road construction, building and operating schools, and organising other public services under the monotonous weather conditions of a tropical land. The president serves for a term of four years, aided by the nine secretaries of state whom he appoints. The Constitutional Congress is the legislative body, of forty-four deputies elected for four years, one-half of whom retire at the end of every two years.

Much Eng. capital is invested in the republic. Education is compulsory and the elementary schools are free. There are secondary schools for boys and girls at San José, a normal school at Heredia, and colleges at Alajuala and Cartago. C. R. can boast one of the lowest percentages of illiteracy in Lat. America. Sp. is the language of the country. The national religion is Rom. Catholicism, but toleration is granted to all sects. The cap. is San José, with a pop. of 79,000 (with suburbs). The other important tns. are Cartago (13,100), Limón (10,200), Heredia (10,800), Alajuala (10,300), Puntarenas (8800), and Liberia (3900). The total pop. of C. R. is 746,500. See L. Fernandez, *Historia de Costa Rica, 1502-1821* (Madrid, 1889; M. de Périgny, *La République de Costa Rica* (Paris), 1918; L. F. Guardia, *Historia de Costa Rica* (San José), 1939; P. E. James, *Latin America* (New York), 1941; and J. and M. Brosanz, *Costa Rican Life*, 1944.

Cost-book System, system of partnership which obtains in various Cornish and Devonian mines. The system consists in a particular method of keeping the accounts and so managing the affairs of the partnership that the exact financial state of the concern can be readily ascertained. The Stannaries Act provides that the cost-book, which contains an abstract of the working expenses and returns on sales, must be made up and laid before the shareholders once in every sixteen weeks. The process of formation of a cost-book company is by first obtaining a licence to search for minerals; if ore is found a lease is granted for a term of years, and then a meeting of the co-adventurers is called to decide on the constitution of the company. Cost-book companies may be registered under the Companies Act, 1908. A member of a cost-book company is at liberty to transfer his shares without obtaining the consent of the other members, and he may also insist on the company taking back his shares and paying him for them. A cost-book company, or rather partnership, is not dissolved by a member merely obtain-

ing an account against the other members or by transferring his shares, or by the death or bankruptcy of any member. The interest of a deceased member devolves as personalty on his next of kin. Members or shareholders cannot, like ordinary partners, bind fellow members by any contract other than one for necessities required for the working of the mine in accordance with the custom of the locality. Cost-book mines are commonly managed by an agent of the shareholders, but such agent cannot make the members liable on a bill of exchange.

Cost of Living. Although the C. of L. must be of prime importance to the majority of the pops. of the different countries of the world, yet over normal periods the variation up or down is so gradual that it is only noticed by statisticians and political economists. But the advent of the two world wars brought such a sudden rise in the price of all those commodities which are necessary to civilised life that the C. of L. became a matter of the most urgent concern to millions of wage-earners not only in the belligerent countries, but throughout the world. During the First World War and up to the present time wages have been fixed for very large sections of the community on a C. of L. basis determined by the C. of L. index number issued by the Ministry of Labour. The index number compares the level of prices or the purchasing power of the money of one period with another. The year 1900 is often taken as the standard, but for practical purposes the C. of L. as stated in the *Ministry of Labour Gazette* represents the average level of retail prices of certain commodities compared with their retail prices in July 1914. The figure given by the Ministry of Labour represents the increase over the July 1914 average. The commodities include ordinary food-stuffs, rent, clothing, fuel and light, and such miscellaneous items as would make up the budget of the average citizen. The index number of the standard year is said to be 100, and rises or falls at different periods are registered against this figure. In the autumn of 1920 the average level of retail prices of commodities in the Ministry of Labour statistics was no less than 175 per cent above the pre-war level of 1913. By 1934 it had dropped to 34 per cent, but after the outbreak of war in 1939 it rose to 74 per cent by Jan. 1940. In 1944 the monthly average was 100-101; in 1945 it varied between 102 and 107, being 103 at the end of the year. The fallacy implicit in the comparison is that it does not take into account the permanent increase in the standard of living in the inter-war period.

Costello, John Aloysius (b. 1891), Irish lawyer and statesman, called to the bar in 1914. Att. Gen.-General, 1926-32; helped to draft the statute of Westminster. Member of the Fine Gael party, he succeeded de Valera as Prime Minister of Eire in 1948.

Costello, Louisa Stuart (1799-1870), Eng. authoress and miniature painter. She wrote poetry, but is chiefly known for her works on travel, memoirs and

romances. Her prin. books are *Songs of a Stranger* (1825); *Specimens of the Early Poetry of France* (1835); *A Pilgrimage to Auvergne* (1842); *Catherine de' Medici* (1848); *Memoirs of Anne of Brittany* (1855); *Béarn and the Pyrenees* (1884); *The Rose Garden of Persia* (1887).

Costello Giubileo, see FIDANE.

Coster, Laurens Janszoon (c. 1370-1440), supposed by some to have been the inventor of movable types and therefore the precursor of printing, was born at Haarlem. Junius, in his *Bataria*, states C.'s claim. Twenty years before Gutenberg he had the idea to carve out characters from cubes of wood; these he put together to form inscriptions to accompany engravings. Later on he used metal instead of wood. A dishonest workman having stolen some of C.'s apparatus, took them to Mainz, where he set up a printing business, taking Gutenberg as partner. The problem as to who really was the inventor of printing has never been solved. Junius lived a hundred years after C.'s death. The rival claims of Gutenberg and of C. are set forth by A. van der Linde in *The Haarlem Legend of the Invention of Printing by Coster* (trans., 1871); Hessel in his *Haarlem, the Birth-place of Printing* (1887); and by Wyss in *Zentralblatt für Bibliothekswesen* (1888).

Costigliole, com. in Piedmont, in prov. of Alessandria, Italy, 8 m. S. of Asti, with silk industries. Pop. 10,000.

Costroma, see KOSTROMA.

Costs. This word in law properly means the sum of money a litigant is ordered by the court to pay to his opponent to recoup the latter for the expense he has incurred in connection with the litigation. The principle of Eng. law is that C. are in the discretion of the presiding judge, but as a working rule it may be said that C. generally follow the event. There is a difference to be observed between the practice in the king's bench courts and that of the chancery courts. The right to C. in the king's bench or common law courts depends on whether the action was tried by a judge alone, or by a judge and jury, and, further, whether it was of such a kind that it ought properly to have been tried in a co. court. When the action is tried by a judge alone the C. are in the absolute discretion of the judge, who in practice would never deprive a successful litigant of C. except for very good reasons, as, for example, where the action was frivolous or vexatious. Frequently plaintiffs in libel actions who recover contemptuous damages are deprived of C. If the action be tried with a jury as well, the C. will follow the result, unless the judge 'shall for good cause otherwise order.' In general it may be said that the judge will be guided by similar principles in each of the above two cases. It is really almost entirely a question of the conduct of the parties. A judge may also make an order that each side pay his own C. There is no appeal from the judge's order except where he deprives a successful litigant 'for good cause,' it being for the court of appeal to say whether such 'good cause' existed. Where an action tried in

the high court ought, by reason of the amount recovered or the value of the subject matter involved, to have been tried in the co. court, the successful party will only get C. on the co. court scale unless a high court judge certifies that there was sufficient reason for bringing the action in the high court. The C. of a chancery or equity action have always been a matter for judicial discretion, and in no way dependent on statutory enactment. The discretion is, however, judicially exercised, and in general the successful party can only be deprived for sufficient cause shown. The party against whom C. are awarded may not have to pay the whole of his opponent's bill of C. Usually C. are directed to be taxed, i.e. the bill is sent to the taxing master's office, and the various items allowed or disallowed. The net amount allowed by the master is called taxed C. Generally C. are taxed 'as between party and party,' i.e. only those items are allowed which are really indispensable to the adequate conduct of the action. C. may, however, be allowed on a more liberal scale, viz. as between solicitor and client, when the successful party will be allowed as many of the charges or expenses which he would have been compelled to pay his own solicitor as fair justice to the other party will permit.

Costume Design, Theatrical. In the early Gk. drama the actors performed their parts in various masks of three readily discernible types—the comic, tragic, and satiric. The wide mouth of the mask served as a megaphone, carrying the voice to the full extent of the theatre, and the set mask showed the wearer's characteristics in a building perhaps too vast for the detection of facial expression. The tragic actor was further distinguished by his long coloured and embroidered robe (the *chiton*), with sleeves and high belt, his tall headdress (*onkos*), his cloak (*chlamys*), and his buskins (*colthurni*) or high thick-soled boots, which made his height impressive, and were graded in thickness according to the importance of the wearer. The comic actor was contrasted by his low shoe (*soccus*), his lack of headdress, abbreviated or absent *chiton*, the costume usually skin-fitting and the padding in various parts of the figure to give him a ludicrous effect. In addition, the colours of the actors' clothing had a symbolic significance.

The Rom. dramatic costume was closely modelled on the Gk., coloured wigs replacing the headdress—white wigs for the aged, black for youths, and red for slaves. Kings wore crowns and were gorgeously apparelled, while beggars were clad in rags.

The It. comic play, or the *Commedia dell' Arte*, developed the still-familiar figures of Harlequin, Columbine, Pantaloon, and Punch. The original Harlequin wore a long jacket laced in front, multi-coloured patches sewn on the breeches, a bat and wallet hanging from his belt; his head was shaved and his cap adorned with a tuft of feathers or the tail of a hare, rabbit, or fox. Later the patches became

blue, red, and green triangles symmetrically arranged, and finally became of diamond shape. Columbine, usually the wife or sweetheart of Harlequin, wore originally the long wide skirt and the apron of a peasant, and later took to the abbreviated skirt of the ballet so much more adapted to the dancer. Pantaloon, in a brown mask, with hooked nose and white beard, was attired in red, with a black cloak and soft noiseless slippers. The anct. Pulcinella, or forerunner of Punch, was always clothed in white, his back was humped and his stomach padded, his mask bore a crooked nose, and his headdress was at times a skull-cap, at others a cone-shaped hat.

by her complicated train. Provided the dress did not detract from the dignity of thought and sublimity of expression of the play, the critics were satisfied. The change came with John Kemble (*q.v.*), who is credited with being the first Eng. actor to make a close study of 'dressing a part on its merits.' Yet even Kemble was guilty of such gross anachronisms as playing Macbeth in a bonnet of the Black Watch Regiment. It was not strict historical accuracy he aimed at so much as a combination of suitability and restraint. But later both he and Macready (*q.v.*) were strongly influenced by the researches of James Robinson Planché (*q.v.*), dramatist and student of costume.



TWO SCENES OF A GREEK KOMOS

From a vase painting.

The early Eng. plays were all connected with religious subjects, and the most notable costumes were those worn by the devil, who was represented with the head of a beast and his body clothed in the skin of an animal. In the times of Shakespeare the prevailing costume of the day was usually worn, but concessions were made in the Rom. dramas, when the leading actors were adorned with breast-plates and plumed helmets. Dressing to suit the part is of comparatively recent date. In the middle eighteenth century Garrick played Macbeth in a contemporary suit of black silk, with silk stockings and a tye wig; Spranger Barry (*q.v.*) played Othello in a full suit of gold-laced scarlet, cocked hat, knee-breeches, and silk stockings; and Mrs. Yates, as Lady Macbeth, appeared in enormous hooped petticoats and huge flounces. It was not that these great actors of George II.'s and George III.'s day were oblivious of these solecisms. Benjamin West (*q.v.*) (1738-1820), the historical painter who introduced modern costume into historical painting, tried to induce Garrick to reform stage costume on his lines; but Garrick was aware that the public would not have tolerated the change; for they had grown accustomed to actors in the dress of their own period irrespective of the century in which the story of the drama passed. The incongruity was not apparent to them, and when, in the previous century, Pope and Addison satisfied the theatrical costumes of their day, it was not on the score of anachronism, but because the hero overdressed, as by wearing a huge plume of feathers, or because the heroine distracted the attention of the audience

and it was to Planché that the Eng. stage owed the first real advance in the reform of costume design. Macready went further than all his predecessors, and is said to have been so impressed with the importance of 'becoming' his dress that after rehearsal he went to bed in it. This practice appears to have been followed by Sir Henry Irving (*q.v.*), who, aware of the reactions of the actor to dress, showed a taste and aptness in the art of costume design that proved the main factor in the present development of that art on the Eng. stage. In our day there have been spasmodic signs of a reaction, as exemplified in the paradox of Hamlet in a top-hat and frock coat; but such experimentation may be regarded as no more than a satire on the pagantry of Sir Herbert Beerbohm Tree's productions. Not seldom, too, has the stage been the medium of introducing, especially to women, new fashions: Miss Violet Vanbrugh, for example, focused attention on the allure of the corselet and stock collar, and Miss Mary Moore, in *Mrs Gorrings's Necktie*, revived the popularity of the Alsatian bow, while to Kate Vaughan was due the vogue of the lace-trimmed petticoat.

Before the Second World War the influence of the Russian stage had its effect on theatrical costume throughout Europe. Early in the twentieth century Diaghilev (*q.v.*) introduced the Russian ballet to Paris, London, and Berlin, and the spectacular beauty of scenery and costume displayed originated in the brilliant imagination of the great artists Benois and Bakst (*q.v.*). The Bakst tradition is continued by many modern artists. See E. Aris, *Costume: Fanciful, Historical,*

and *Theatrical*, 1906; M. Willson Disher, *Clowns and Pantomimes*, 1925; A. Nicoll, *Development of the Theatre*, 1927; P. L. Duchartre, *Italian Comedy* (trans. by R. T. Weaver), 1929; R. Fulöp-Miller and J. Gregor, *Russian Theatre* (trans. by P. England), 1930; M. Fernald and E. Shenton, *Costume Design and Making*, 1937; and F. M. Kelly, *Shakespearean Costume for Stage and Screen*, 1938.

Costume, see FASHION.

Costus, genus of tall herbaceous plants with pinnately veined leaves. They grow in the tropics and bear brightly coloured flowers in spikes, the enlarged lip of the flower being the conspicuous part. Owing to the spiral arrangement of the leaves on the stem the genus is popularly known as spiral flag. Sev. species are cultivated in England under glass, the most attractive species being *C. igneus*, with orange-red flowers, and *C. malortianus*, with gold and orange flowers.

Cosway, Richard (1742-1821). Eng. miniature painter, son of the master of Blundell's School, Tiverton, where he received his education. His success in life is said to have been due to his clever portrait of Mrs. Fitzherbert, which gained for him the interest of the Prince of Wales.

Coswig, tn. of Anhalt, Germany, 12 m. from Dessau. There are textile manufs. and coal mining. Pop. 12,000.

Cotabato, see COTABATO.

Cotangent, see under TRIGONOMETRY.

Coteaux, com. and minor part of Haiti, W. Indies, 12 m. S.S.E. across the peninsula from Jérémie. Pop. 12,000.

Côte d'Or, dept. of E. France, part of the old prov. of Burgundy. Area 3391 sq. m. A chain of hills known as the Plateau de Langres runs through the centre of the dept., and in the S. is the chain of the C. The N.W. dist. of Châtillonais is densely wooded, and there the Seine takes its rise. Other rivs. are the Rhône and the Loire, and a canal, which connects the Saône with the Yonne, is 94 m. in length. C. is divided into three arrons.: Dijon, Beaune, and Montbard, the tn. of Dijon being the cap. of the dept. The climate is equable and healthy, the plains and valleys are fertile, and there is rich pasture land. The prin. wealth of the prov. lies in its vineyards, and it is here that the celebrated Burgundy wines are produced. Other products are wheat, barley, potatoes, hops, and a little tobacco. Sheep and cattle rearing take place in the W. dist. The manufs. (pre-1940) include iron, which is found in the dist., steel, tools, and machinery, paper, tiles, and bricks; there are also flour mills and breweries. Chief import is coal, and there is great export trade in wine, brandy, and live-stock. Pop. 335,600.

Cotelerius, Jean Baptiste (1627-86), eminent Fr. Hellenist, b. at Nîmes. He held the office of prof. of Gk. at the Royal College in Paris with great distinction. He pub. *Monumenta Ecclesiae Graecae* in 3 vols. (1677-86), and various other works.

Cotentin, Anne Hilarion de, see TOURVILLE, COMTE DE.

Cotentin, dist. of France which forms part of the dept. of La Manche, on its N. coast being Cape La Hague. This portion of land was originally the diocese of Coutances. Its chief tn. is now Cherbourg. The C. peninsula was the scene of hard-fought engagements in the battle of Normandy in July 1944. Cherbourg was captured on June 22-26, 1944, and though fanatical groups continued to resist for a short time, all resistance in the N. C. came to an end by July 1. On July 28 the Ger. escape route through Coutances was sealed with the capture of the city by the U.S. 4th Armoured Div., which, with the 6th Armoured Div., formed the spearhead of the 7th Corps. The enemy withdrawal, following the loss of Coutances, began to degenerate into a disorderly retreat. See further WESTERN FRONT IN SECOND WORLD WAR, *Battle of Normandy*.

Cotes, Francis (1725-70), Eng. portrait painter, one of the originators of the Royal Academy of Arts. He was a Londoner by birth, and became a pupil of George Knapp. He took an active part in the artistic life of the country. His portraits in crayons were unrivalled, and he was also a good painter in oils. His chief works are portraits of Mrs. Child of Osterley Park, and of the beautiful daughter of Wilton, the sculptor, afterwards the wife of Sir Robert Chambers. His portraits have been engraved by Bartolozzi, Ryland, Green, MacArdell, and others.

Cotes, Roger (1682-1716), famous Eng. mathematician, b. at Burbage in the co. of Leicester. He was educated at St. Paul's School, London, and at Trinity College, Cambridge, becoming a fellow of Trinity in 1705, and in the following year Plumian prof. of astronomy. In 1713 he wrote a valuable preface to the second ed. of Newton's *Principia*, and about the same time took holy orders. His death at the very early age of thirty-four brought the tribute from Newton that 'had Cotes lived we might have known something.'

Côtes-du-Nord, maritime dept. of the N.W. of France, formed from part of Brittany. Area 2787 sq. m. Off the steep rocky coast lies Bréhat and other small is. In form C. is an undulating plateau, with three ranges of hills in the S. portion. The climate is mild and equable. On the high lands the soil is poor, but along the coast, where seaweed and marl are used as a fertiliser, it is much richer. Wheat, oats, and buck-wheat are largely grown, also potatoes, mangels, apples, and plums. The culture of flax is an important industry, and the dept. is famed for its breeding of horses. Slate, lime, and china-clay are found, and the flour mills, tanneries, iron-works, and ship-building yards form a source of employment to many of the natives. The chief imports are coal, wood, and salt, and the exports are horses, flax, and agric. products. The fishing industry is of great importance. C. is divided into the four arrons. of St. Brieu, Dinan, Guingamp, and Lannion. The cap. tn.

is St. Brieuc. The dept. contains many interesting churches dating from the twelfth century. Pop. 526,900.

Cotgrave, Randle (d. 1634), the author of our earliest Fr. dictionary. He was of a Cheshire family, but little is known of his early life. He was educated at St. John's College, Cambridge (1587), and afterwards became secretary to Wm. Cecil, Lord Burghley. In 1611 he pub. his *Fr.-Eng. dictionary*, of which there was a second ed. in 1632. It was a remarkable book of its time, and is still of great value to the philologist.

Cöthen, see KÖTHEN.

Cotignac, Fr. tn. situated in the dept. of Var, and near it is the church of Notre Dame de Grâce, a centre for pilgrims. Pop. 1500.

Cotignola, tn. of Ravenna prov., Italy. Contains sev. monuments, which were more or less severely damaged in the Second World War. The house of the Storza was demolished, the church of S. Stefano badly shattered, and the tn. hall was mined and bombed by the Gers. Pop. 10,000.

Cotillon (Fr. petticoat), name of a lively dance of Fr. origin, of the time of Louis XIV., not to be confused with the quadrille, and performed by eight persons. It developed into the form of a quick waltz, and was danced to the music of waltzes, polkas, mazurkas, and galops. The dance is a very favourite one on the Continent and in the U.S.A.

Cotin, Charles (1604-82), wealthy Fr. preacher and poet, and the counsellor and almoner of Louis XIV. He was versed in philosophy, theology, and the Heb., Syriac, and Gk. languages. His *Oeuvres Mêlées* was pub. in 1659 and his *Oeuvres Galantes* in 1663. Boileau frequently mentions him in his satires, and Molière in his *Femmes Savantes* satirises him under the name of Trissotin.

Cotinga, bird of the family Cotingidae, commonly known as the Chatterers. It is found only in tropical America. The plumage of the male is especially magnificent at certain times of the year. The general colour of the female is plain grey or green. It feeds on fruit and insects.

Cotman, John Sell (1782-1842) eminent Eng. artist. b. at Norwich, where he was educated at the grammar school. Showing an aptitude for painting, he went to London about 1798 to study, and there made the acquaintance of a number of famous artists, including Turner. He returned to Norwich in 1807, and obtained a livelihood by giving lessons in drawing, while he also painted many landscapes and a number of portraits. Mainly by Turner's assistance he was successful in obtaining the post of drawing-master to King's College, London, in 1834. Unfortunately he suffered from fits of melancholy, and in his later years bore much suffering with courage. He is perhaps the best of the 'Norwich school,' and, in addition to the large number of water-colour drawings he produced, he found time to publish sev. vols. of excellent etchings. See L. Binyon, *John Crome and John Sell Cotman*, 1897, and S. D. Kitson, *The Life of John Sell Cotman*, 1937.

Cotman, Joseph John (1814-78), landscape painter, the second son of John Sell C. As an artist he had much original power, but his ill health was an insurmountable bar to any success in life. He produced many drawings of great merit.

Cotman, Miles Edmund (1810-58), landscape painter and the eldest son of John Sell C. He painted riv. and sea views, and etched a few plates, his work showing much taste and skill.

Coto Bark (*Cortex coto*), officinal bark obtained (since 1876) from Bolivia, used formerly in cases of diarrhoea, colic, and for neuralgia, gout, rheumatism, and excessive perspiration. Its exact source is not known. It may be derived from *Palicourea densifolia*. The bark is in flat pieces destitute of cork, cinnamon-brown outside and darker underneath. It has an aromatic smell and a bitter pungent taste. See H. Watts, *Chem. Dict. ii.*, *Syd. Soc. Lxx.*, 1882.

Cotoneaster, genus of Rosaceae closely allied to the hawthorn genus *Crataegus*. The species are favourite shrubby plants which grow wild in N. lands. In Britain *C. vulgaris* was formerly found in N. Wales upon the cliffs at the Great Orme's Head, but the pretty rose-petalled flower is now extinct.

Cotopaxi, volcano in the E. range of the Andes in Ecuador, S. America, and about 35 m. S. of Quito. The cone of the volcano is beautiful in appearance and snow-clad. Estimated by Whymper to be 17,613 ft. above sea level (the top is about 10,000 ft. higher than the elevation of the valley). C. is the highest active volcano. There have been numerous eruptions, the most violent being probably that of 1768.

Cotrone, seaport and fort. tn. in the prov. of Catanzaro, Calabria, Italy. It is on the site of the anc. Crotona founded by the Achæans, 710 B.C., and was taken by Agathocles of Syracuse in 299 B.C. It was the residence of Pythagoras and of Milo, and was for a long time one of the richest and most populous cities of Magna Græcia. It has a fine citadel, but its streets are narrow. Exports olives and oranges. Pop. 11,600.

Cotswold Hills, range of oolitic limestone hills in Gloucestershire, England. They extend over a length of about 50 m., the highest peaks reach to a height of 1100 ft. (Cleve Hill is 1134 ft.), but the average height is between 500 and 600 ft. The Thames takes its rise in the E. slopes. Large flocks of sheep are bred in the dist. Most people associate the word Cotswold with the line of hills extending across Gloucestershire from Wotton-under-Edge to Aston-sub-Edge, which is about 40 m. by 30 m. wide in some parts. The hills, however, really commence at Bath, spread northwards into Gloucestershire, and over the border of that co. into N. Oxfordshire, S. Worcestershire, and Leicestershire. The range of the C. H. is, roughly, divided into two portions by the valley of the Churn, and the scenery E. and W. of this valley differs to a great extent.

The C. H. were of considerable importance in anc. times, as is shown by

the old tracks on the high parts, and the early Brit. forts and Rom. camps. The dist. was of equal importance during the Middle Ages, when the woollen industry of the Flemings was at the height of its prosperity, and the splendid par. churches, imposing houses, and solidly built inns are evidences of the wealth of those bygone days. In the byways beyond the chief tns. of the Cotswolds, still old-world and unspoilt, little vils. with their houses of soft, warm-hued stone are a source of delight to artists and tourists.

served Tudor mansions in England; Bear Hill, near Woodchester; and Painswick Beacon (922 ft. high), with a Brit. hill-top fort on the summit. *See also under the names of the tns.* *See H. Branch, Cotswold and Vale, 1904; O. G. S. Cranford, Long Barrows of the Cotswolds, 1925; H. J. Massingham, Cotswold Country, 1938; J. A. Gibbs, A Cotswold Village, 1939, and F. Derrick, Cotswold Stone, 1948.*

Cotta, com. of Saxony, Germany, in the dist. of, and a W. suburb of the city of, Dresden.



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UPPER SLAUGHTER IN THE COTSWOLDS

Among the chief tns. are Gloucester, Cheltenham, Stroud, Evesham, Cirencester, Chipping Norton, Stow-on-the-Wold, Tewkesbury, Malmesbury, Lechlade, Pershore, and Tetbury. Among the smaller tns. and vils. may be mentioned Painswick, Minchinhampton—noted for its common—Chipping Sodbury, Charlton Kings (in the grounds of Ashley Manor are the biggest oaks in the country, and there are traces of a Rom. camp at Battle-down Knoll), Broadway, Burford, Chipping Campden—noted for its market hall—Upper Slaughter, Lower Slaughter (with a delightful riv. which flows down the middle of the street between stone banks and grassy verges, and eventually joins the Windrush at Burton), Amberley (with a beautiful common on which, at Rose Cottage, Mrs. Craik wrote *John Halifax, Gentleman*), Sapperton (where the present poet laureate, John Masefield, lives), and Wincombe. Other features include Compton Wynates, 10 m. from Banbury, one of the most beautiful and best pre-

Cotta, Ger. publishing firm, founded in Tübingen by Johann Georg C. in 1640, and later one of the most flourishing in Germany. The family was originally of noble It. descent. The founder (1631–1692) married the widow of Philipp Braun, a univ. bookseller, and took over the management of the business, and so estab. the future of the firm. Subsequently the business was allowed to languish, but Johann Friedrich, Baron C. von Cotten-dorf (1764–1832), restored the fortunes of the firm. The connection rapidly extended, and in 1794 he started the *Allgemeine Zeitung*; also *Die Horen* in 1797 with the assistance of Schiller. He made friendships with many literary men, amongst whom were Huber, Pfeffel, Herder, Schelling, Fichte, Richter, and Voss, whose works he pub. In 1811 the business was transferred to Stuttgart. In 1824 he set up a steam printing press in Augsburg, and founded in the following year a literary institute in Munich. His son, Georg, Baron C. von Cotten-

dorf (1796-1853), further extended the business by buying various publishing concerns in Leipzig and Munich, founding periodical pubs., and issuing eds. of the Ger. classics. His younger son, Carl von Cottendorf (1835-88), took on the business at the death of his father. During his time sev. of the branches were sold, and after his death the business passed into the hands of A. and P. Kröner.

Cottabato, or **Cotabato**, chief tn. of a dist. of the same name in Mindanao, one of the Philippine Is. The dist. is mountainous, and the chief peak, Mount Apo, is a volcano. The tn. is situated on the Rio Grande de Mindanao. Pop. 2500.

Cottarli, see **BORDARI**.

Cottbus (Kottbus), industrial tn. on the R. Spree in Brandenburg, Germany. It has manufs. of cloth, linen, carpets, and machinery; and brewing and tanning are also carried on. In the Second World War C. was captured, after protracted fighting on the Oder, by Marshal Zhukov's forces in April 1945 in the course of the battle for Berlin.

Cottet, Charles (1863-1925), Fr. painter, b. at Puy. He was a pupil of Puvis de Chavannes, and of Roll. He made his name by his gloomy, sombre, and impressive scenes of life on the coast of Brittany. In 1889 he exhibited two pictures in the *salon* of the Champ de Mars, and in 1890 his 'Storm on the Meuse' was produced. Another picture of great power is 'A Burial in Brittany,' 1895, now in the Lille Gallery. His fine triptych in the Luxembourg at Paris, painted in 1898, marks the full development of his powers, and is one of the series of the 'Pays de la Mer.'

Cottian Alps, that portion of the main chain of the Alps extending from the Graian Alps on the N. to the Maritime Alps on the S., lying on the borders of France and Italy, and forming a div. of the W. Alps, as distinct from the Dauphiné Alps to the W. The C. A. have more than thirty peaks exceeding 10,000 ft., of which the most important are Monte Viso (12,609 ft.), Aiguille de Scolette (11,500 ft.), Aiguille de Chambeiro (11,155 ft.), Rognosa d'Etache (11,106 ft.), Dents d'Ambin (11,096 ft.), Rochebrune (10,906 ft.), and Rognosa di Sestrières (10,753 ft.). There are some twenty passes or cols, among which is the pass of the Mont Genève, between the Cottian and Graian Alps, connecting the valleys of the Rs. Dora Riparia in Piedmont and Durance in the Hautes Alpes. This is one of the oldest of the Alpine passes, and is the lowest carriage road in the W. Alps, while it is believed by many authorities to be the roadway used by Hannibal when crossing into Italy. There is also the famous Mont Cenis pass between Susa and Modane, constructed by Napoleon, and once the most used of the roadways, while the railway tunnel of Mont Cenis, 7 m. long, passes under the Col de Fréjus about 15 m. away. Other passes are the Col de Longet, Col d'Agello, Col de la Traversette, Col de

Sestrières, and the Col des Echelles. Here also are the Waldenses, who took refuge in the valleys of the C. A.

Cottingham, tn. of Yorkshire, England, E. Riding, 4 m. from Hull, Howdenshire div. Pop. 6000.

Cottle, Joseph (1770-1853), bookseller and author. He set up in the publishing business in Bristol (1791), where, through Robert Lovell, he made the acquaintance of Southey and Coleridge, making offers to each of them of 30 guineas for their poems; and in addition 50 guineas for Southey's *Joan of Arc* and 1½ guineas to Coleridge for every 100 lines of poetry he might write. C. was chiefly responsible also for Coleridge's periodical *The Watchman*, and, after an introduction to Wordsworth, pub. the *Lyrical Ballads* (1798). On retiring from business C. produced *Malvern Hills* (1798), and sev. other vols. of his own verse. It was he who handed over to Coleridge De Quincey's donation of £300, and he had some extremely sanctimonious correspondence with the poet protesting against his indulgence in opium. His *Early Reflections* (1837, 1847) contains an injudicious and unworthy exposure of Coleridge, and the book is condemned, moreover, for inaccuracy and confusion.

Cotton, Sir Arthur Thomas (1803-99), Eng. general and irrigation engineer, who in 1828 began his life-work on the irrigation of S. India. The scheme for the waters of the Krishna was his, though it was carried out by Maj.-Gen. Charles Orr. Before his efforts Tanjore and the adjoining dists. were threatened with ruin from lack of water; they afterwards became the richest part of Madras. C. founded a school of Indian hydraulic engineering, and much of his work was done in the teeth of opposition and discouragement.

Cotton, Charles (1630-87), Eng. poet and translator of some note. He was b. at Beresford in Staffordshire, and is said to have been educated at Cambridge. His father, himself a brilliant man, numbered among his friends Ben Jonson, Selden, Izaak Walton, and Donne, and possessed estates in Derbyshire which were lessened in value through law suits. The younger C. travelled on the Continent as a boy, and although he was always interested in literature we have no record of his following a calling. In 1656 he married a cousin, Isabella, the sister of Col. Hutchinson. He was open-handed and improvident, of engaging manner and appearance, while he seems to have been continually embarrassed by pecuniary matters. His *Ode to Winter* has been eulogised by Wordsworth and Lamb, but his most meritorious work is a trans. of Montaigne's essays, first pub. in 1685. His *Scarronides*, or *the First Book of Virgil Translated*, was pub. anonymously in 1684, and was revised in later eds., becoming more gross on each occasion. He also wrote *The Compleat Gamester* (1674); *Wonders of the Peake* (1681), and contributed to the fifth ed. of Walton's *Compleat Angler*. See C. J. Sembrower, *The Life and the Poetry of Charles Cotton*.

1911, and G. G. P. Heywood, *Charles Cotton and his River*, 1928.

Cotton, George Edward Lynch (1813-66), Eng. educationist who became an assistant master at Rugby, co-operating heartily with Arnold. In 1852 was appointed headmaster of Marlborough College, which he raised to a high position. In 1858 C. became bishop of Calcutta, his chief work being the estab. of schools for Brit. and Eurasian children.

Cotton, John (1584-1652), Eng. non-conformist divine, b. at Derby. He was a tutor at Cambridge, and was later appointed vicar of Boston, Lincolnshire. Cited to appear, for his Puritan views, before Laud at the high commission court, he fled, in 1633, to New England, and rechristened Trimountain, his landing-place, Boston. Here he preached and helped to frame the civil laws for the state of Massachusetts. He was reputed a profound scholar, and was the author of nearly fifty works, including a catechism, forms of prayer, and a defence of the interference of civil authority in religious matters, in a famous controversy with Roger Williams.

Cotton, Sir Robert Bruce (1571-1631), eminent Eng. antiquary, was b. in the co. of Huntingdon, and educated at Westminster School, London, under the famous Camden. At an early age he commenced to collect old MSS. and coins, in which he was greatly helped by the dissolution of the monasteries some fifty years earlier. He was a member of and read papers at the meetings of the Antiquarian Society, and rapidly acquired a great reputation. Elizabeth referred to him a question of precedence between England and Spain, while similar requests were made by members of the gov. Under James I. he rapidly came into royal favour, and received a baronetcy in 1611, one of the earliest granted, while the king employed him on sev. antiquarian researches. In 1615 he was imprisoned on suspicion of being implicated in the murder of Sir Thomas Overbury, but was released without trial after eight months. He returned to Parliament, where his influence was used in opposition to the Crown on constitutional grounds, while he strongly opposed the suggested debasement of the coinage. A pamphlet entitled *The Proposition to Bridle Parliament* falling into the king's hands was found to be a copy of the original in C.'s library, and it being considered dangerous to the state, C. was imprisoned and a trial by Star Chamber appointed. On the day fixed, however, an heir to the throne was born, and to mark the event Charles I. released C. and the others implicated. The use of his library was, however, denied to C., who sickened and died through the consequent depression. Although writing many pamphlets, he produced no outstanding work. The library with its additions from C.'s descendants was bequeathed to the nation in 1700. At the fire in 1731 at Ashburnham House, Westminster, 114 of the total 958 vols. were destroyed, and 98 partially destroyed. The library is now incorporated

with that of the Brit. Museum. See J. Planta, *Catalogue of the Manuscripts in the Cottonian Library* (London,) 1802.

Cotton, Sir Stapleton, see COMBERMERE, VISCOUNT.

Cotton, Gun, or Pyroxyline, name of an explosive substance produced by the action of nitric acid on cotton. Sulphuric acid is used to absorb the water formed by the nitric acid as it gradually combines with the cotton. G. C. possesses four or five times the explosive power of gunpowder, and is generally moulded into disks of suitable sizes. When free it burns readily, and only explodes when fired with a detonating fuse, or if heated in confinement. The presence of water does not interfere with its explosive powers, and a detonator in a small quantity of dry G. C. will explode the wet mass. This is very useful, as it can be carried in a wet condition, being then safe to handle, yet ready for use.

Cotton Printing, see CALICO PRINTING.

Cotton Seed Oil is obtained by pressure from the C. S., of which it constitutes nearly one quarter, and is used for a great many purposes, such as a substitute for olive oil, or an ingredient in the manuf. of soap, candles, and gramophone records.

Cotton Spinning and Manufacture.

Cotton Fibre.—So far as authorities have been able to ascertain, India is the accredited hp. of C. manuf., and it would seem probable that the processes of spinning and weaving have been carried on from the earliest date of which we have any record. India had an export trade in C. in the reign of Amasis, 569-525 B.C. It is probable that the consumption of raw C. for the making of garments existed long before Herodotus. The C. plant is indigenous to nearly all tropical and semi-tropical countries. It is a wool-bearing shrub, called *Gossypium* by scientists, and is largely distributed all over the torrid zone. No sooner does the C. plant arrive at maturity than its swollen capsules or pods burst with a natural force into three or five segments to display its fleecy product. It has been calculated that there are about 137 varieties of C. The main species in use, however, are *Gossypium Barbadesense*, *G. herbaceum*, *G. hirsutum*, and *G. arboreum*, or *G. peruvianum*. These include, respectively, Sea Is. and Egyptian (the finest varieties of all C.); Amer. Upland C.; Indian, African, Chinese, and other Asiatic varieties; and the fourth species named comprises grades of C. grown in India, S. and Central America, and Asia, and is the most universally consumed. C. is classified according to grades and staple lengths. Grades comprise a range of characteristics such as colour, feel, presence of extraneous material, etc., which are less susceptible to accurate measurement than staple lengths, which largely determine the spinning capacity of the fibre. No general agreement has yet been reached for an international standard, so that the staple descriptions of different countries are not strictly comparable. Many different types of C. exist, with distinct but overlapping ranges of staple. According to the

United States Dept. of Agriculture, C. with a staple range between $\frac{1}{2}$ in. and $1\frac{1}{2}$ in. constituted 60 per cent of the world production between 1927 and 1928, and 1931 and 1932.

The increasing output of comparable staple ranges in the Soviet Union, S. Brazil, and the irrigated regions of India have materially raised the share of this group in the world total in recent years (before the Second World War). C. below $\frac{1}{2}$ -in. staple predominates in the indigenous growths of China and India. The adoption of shorter stapled and earlier maturing varieties to reduce the incidence of boll weevil and the general



COTTON PLANT

A, cotton; B, section of seed; C, seed; D, calyx.

shift of C. growing towards the W. sub-humid zones largely accounts for the preponderance of the staples below 1 in. in the output of the U.S.A. India is also endeavouring to grow finer C., both on account of the restricted market for short staple varieties, and because the growing domestic manufacturing industry is consuming larger quantities of the finer types. Under the microscope a C. fibre appears as a flattened twisted tube, thicker at the edges than in the centre, and being of equal diameter for about three-fourths of its length; after which it gradually tapers for the remainder of its length, at the same time becoming more cylindrical. This peculiarity of the C. fibre to twist on its axis is the prin. cause of the C. fibres being so admirably adapted for spinning. It should be stated that unripe fibres and C. in a wild state do not possess these readily twisting qualities. Botanists show that a good staple contains from 300 to 800 twists in its length, the mean length varying from 1.7 in. as in Sea Is. to 0.9 in. as in the best Indian quality; in an ordinary variety, the number of twists ranges to over 150. Strength depends upon the number of twists and fineness of diameter and upon the length of the fibre. The length of C. fibres grown in the U.S.A. varies from $\frac{1}{2}$ in. to $1\frac{1}{2}$ in.; Sea Is. fibres from $\frac{1}{2}$ to $2\frac{1}{2}$ in.; Egyptian from 1 to $1\frac{1}{2}$ in.; Brazilian from $\frac{1}{2}$ to $1\frac{1}{2}$ in.; Indian

from $\frac{1}{2}$ to 1 in.; Peruvian from $1\frac{1}{2}$ to $1\frac{1}{2}$ in. The fibres vary in diameter as follows: Sea Is., $1\frac{1}{2}$ in.; Egyptian, $1\frac{1}{2}$ in.; Amer. (ordinary), $1\frac{1}{2}$ in.; Indian (best quality), $1\frac{1}{2}$ in.

Cotton Crop and Production Statistics.—The largest C. crop is produced in the U.S.A., and it remains the most marketable C. because it is the most adaptable to general domestic use. But besides the countries already mentioned, C. is grown on Russian ter. in Asia, and (under the auspices of the Brit. C.-growing Association) in Uganda, Nyassaland, W. Indies, W. Africa, and the Sudan. But the three greatest grades for general consumption are cultivated in the U.S.A., Egypt, and India. In round figures about 25,000,000 bales, averaged at 500 lb. each, are consumed, in all parts of the world, annually. The most recent statistics (1939) give the following figures for C. seed: U.S.A., 7,500,000 tons; Brit. India, 2,400,000 tons; Russia, 1,700,000 tons; China, 1,600,000 tons; Brazil, 1,100,000 tons, and Egypt, 1,000,000 tons. C. (ginned): U.S.A., 4,100,000 tons; Brit. India, 1,025,000 tons; Russia, 820,000 tons; China, 700,000 tons; Egypt, 490,000 tons; and Brazil, 475,000 tons. In the decade before the Second World War the C. industry was subjected in certain countries to gov. measures designed either to expand or restrict acreage by means of loans and subsidies. The demand for C., together with the market position of alternative commodities, largely influenced the ann. acreage under C. World acreage under C. rose steadily from 75,700,000 ac. in 1933-34 to 94,700,000 ac. in 1937-38. In 1938-1939 a fall to about 80,000,000 ac. occurred, largely owing to the smaller area sown in the U.S.A. and to reduced planting in China. Acreage planted to C. in the U.S.A. represents (1939) about 40 per cent of the world total. Acreage planted in India (before the war) showed much smaller fluctuations than in America. In 1938-39 it was estimated at 23,500,000 ac., the smallest area planted since 1932-33. The area under C. in Brit. Empire and foreign countries in 1938-39 was as follows: *Empire*: India, 23,500,000 ac.; Burma, 500,000 ac.; Uganda, 1,500,000 ac.; Tanganyika, 300,000 ac.; Anglo-Egyptian Sudan, 500,000 ac.; other Brit. ter., 200,000 ac. *Foreign*: U.S.A., 26,400,000 ac. (i.e. acreage harvested); China, 7,500,000 ac. (estimated on the basis of production figures); Brazil, 6,200,000 ac.; Soviet Union, 5,100,000 ac.; Egypt, 1,900,000 ac.; Argentina, 1,000,000 ac.; Mexico, 800,000 ac. (1937-38); Korea, 600,000 ac.; Belgian Congo, 1,000,000 ac.; Turkey, 700,000 ac.; Fr. W. Africa, 300,000 ac.; Peru, 400,000 ac.; Haiti, 300,000 ac. (1937-38); other countries, 1,700,000 ac. The record production figures were those for 1937-38, when production for Brit. Empire countries totalled 2,273,000,000 lb.; and for foreign countries, 16,313,000,000 lb. as compared with a grand total approximately 5,000,000,000 lb. less, the major part of

the decline being in Amer. production, the chief cause of the decline being the planned reduction of acreage in the U.S.A., where, additionally, modern mechanical methods in cultivation include the use of the flame-thrower weeder, the C. picker, and the four-row cultivator, thus reducing considerably the labour force necessary. It should be noted that the unit yield of C. varies in different countries, and also in the same country through weather and soil conditions; but broadly the yield per acre of the chief producing countries is as follows. In lb. per acre: Peru, 463; Egypt, 383; Soviet Union, 361; Anglo-Egyptian Sudan, 270; U.S.A., 211; Brazil, 145; Argentina, 113; Uganda, 87; and India, 84. The largest exporters of raw C. are the U.S.A., India, Egypt, and Brazil. Figures (in millions of lb.) for exports in 1937 and 1938 were as follows: U.S.A., 3035 and 2289; India, 1474 and 1022; Egypt, 882 and 786; Brazil, 521 and 592. Other countries: Peru, 178 and 153; Uganda, 135 and 161; China, 84 and 301; Belgian Congo, 71 and 94; Soviet, 85 and 36 (first quarter only).

RAW COTTON MANUFACTURING PROCESSES. Ginning.—The preparation for each season's crop of raw C. begins in Jan. and goes on until March, this work consisting of clearing and breaking up the ground. Planting of seeds commences in April, ending at the latest about the middle of the month. The picking of the ripe C. starts in Aug. and is completed in Dec. or the middle of Jan. The new season's crop of Amer. C. begins to arrive in Lancashire about the middle of Sept. or the beginning of Oct. The chief markets for the sale of the world's C. are New York, New Orleans, Liverpool, Bombay, Havre, Bremen, Milan, and Amsterdam. It is sold on 'spot,' but principally in 'futures,' for delivery at some future date arranged by those who contract its sale, which is governed by the strict rules of the various C. exchanges. Every C.-producing country has a variety of grades or quality, the prices being arranged accordingly. The base price for Amer. C. is known by the term of middling and Egyptian good brown, there being grades below and above these qualities. Every decimal point above or below the basic price means $\frac{1}{10}$ cent. The first process through which raw C. passes after being picked from the plants (by hand and sometimes by machinery) is that of ginning, which consists of separating the seeds from the raw material. This is usually performed by different types of gins operated in close proximity to the plantations. This is an important process, as C. before being picked is composed of two-thirds seeds, and it is absolutely essential to separate these before the C. can be used for spinning, or even for baling. The first C. gin was invented in 1793 by Eli Whitney, an Amer. (q.v.), and its productive capacity completely revolutionised the C. industry. The gin most in use is the saw gin, so called by the fact that the fibres are torn from the seeds by a series of circular saws, which press against a grid to prevent

the seeds from passing beyond a certain stage of the machinery, with the consequence that the fibres are plucked from the adhering substance or the seeds. It is not a perfect process by any means, as it tears the fibres too much and injures them. Roller gins have been introduced as rivals to the saw gin, but in spite of the damage which the latter inflicts on the fibre, it continues to hold its place, owing to its rapidity of production. It may be briefly stated that of the sev. types of gins in use, the most universally adopted are the Macarthy (or roller) gin and the Eagle (or saw) gin. After leaving the ginning houses the C. is pressed by machinery into bales, varying in weight from 200 lb. as in the case of Peruvian C., to 500 lb. as in the case of Amer. C., and 730 lb. as in Egyptian C. There are both round bales and square bales, some being called after the inventor of the particular bales in use.

Mixing and Blending.—On arriving at the spinning mill the raw material begins to pass through a series of processes, all more or less remarkable for the ingenuity with which they have been devised. Mixing is the first process. The C. is taken from the bales in its closely packed and matted condition and piled in stacks. It is allowed to stand in storage compartments for sev. days to permit the fibres to expand to their natural condition, and also to take out any excessive moisture. The blending is done for economic reasons, as it has been learned by experience that the required quality of yarn may be effected by mixing a higher grade of C. with a lower one. It is essential that there should be a proper blending of shades if the C. is meant for yarn that has not to be dyed; but the chief consideration is that of getting a mixture of grades of fairly even fibres, so as to obtain the necessary evenness and elasticity in the yarn. It is the practice in some mills still to do the mixing by hand. In that case the raw material is spread in layers, one grade being on top of the other. Great stacks are built up in this way between compartments with lattice sides to allow a passage of air to get to the C. It is, however, the practice in the large mills to mix C. now by machinery. Bale-breakers are used for this purpose, and it is claimed that the work is done not only more quickly, but more efficiently, as the C. is mixed in smaller pieces. There are three types of bale-breakers, the spiked roller machine, the porcupine machine, and the hopper breaker, which is the one now most commonly in use. One of these machines will mix 750 lb. of Egyptian C. in about 10 min. and 500 lb. of Amer. in 5 to 10 min. The labour saving thus effected is considerable. One machine will mix over 150,000 lb. of C. a week. When the bales of C. have been opened, and the raw material properly mixed and stored, the next process is that of scutching.

Scutching and Carding.—The scotch is a machine consisting of beaters running at from 1000 to over 1500 r.p.m.; its object is to clean the C. and form it into

laps in the shape of rolls of paper used in connection with printing. The machine by its revolving blades beats the rough dirt out of the C., and by an ingenious process of fans and rollers forms it into a continuous sheet, which is formed into a lap at the back of the machine. The laps, or rolls of C., formed at the scutcher are conveyed to the carding engines. The laps have been formed even in weight and thickness, but the fibres are mixed up anyhow. It is the function of the carding engine to straighten them out, or, in other words, comb them, as a woman would comb her hair. The machine turns the C. into a sliver or rope of gossamer fibres, delivering the sliver into a revolving cam. There are different types of carding engines in use, but the one most generally adopted is the revolving flat carding engine. Its name is derived from the travelling 'flats' on which the cards are placed. The wire teeth of the cards come in contact with the wire clothing of a cylinder running at about 26,000 r.p.m. The flats, however, travel (over the cylinder) at a slow pace and in the same direction as the cylinder, and the C. is thus cleaned and combed by contact with the surface of the teeth on the flats and on the cylinder. The wire teeth are of varied counts or thickness or thickness, according to the class of C. most used at the mill; they vary from 300 to 650 points per sq. in. In mills devoted to the spinning of fine counts, C. is put through combers after having been through the carding engine. Here the sliver is re-made into small laps, which are carried to a second lot of carding machines. Other processes having a similar purpose are introduced; but, whether mills of fine or coarse counts, the object of carding is to prepare the C. in slivers for the drawing frames. The function of this machine is to put several slivers together and draw them out into one. By this means the fibres or slivers become well blended together and all irregularities eliminated. It passes from the drawing frames, to the flyer or slubber frames, where the attenuated sliver is subjected to a slight draft, or in simpler language the fibres are stretched and twisted together, but only to a small extent.

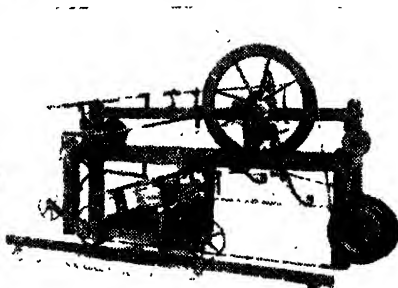
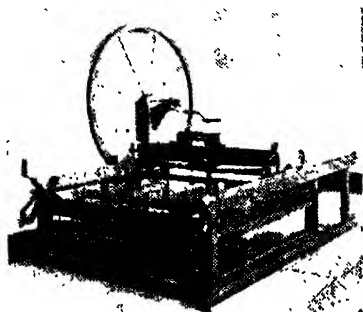
It passes through three rows of draft rollers running at different speeds, twisted by the flyers and wound on to bobbins or tubes; only enough twist, however, is given to the roving to enable it to run on to the bobbins without breaking. But the object is to lessen the thickness of the sliver made at the drawing frame; from being the thickness of an ordinary rope, it is reduced to a string or roving. In factories where fine counts are produced, the next process is the intermediate frame. It adds a little more twist to the roving and stretches it a little more, thus lengthening and thinning it. It is from Sea Is. and Egyptian C. that the fine counts of yarn are made. Coming from the intermediate frame, or the slubber frame, as the case may be, the roving is now passed through the roving frame or Jack frame, where it is further stretched

and thinned and twisted. It receives the roving from two bobbins per spindle, and by means of the larger draft, makes two rovings into one finer and thinner than either of the two.

Spinning—Mules and Spindles.—In all the processes previously mentioned, from the carding engine, the object has been to bring the thick sliver more and more to the fineness of the yarn to be spun on the spinning mule, and afterwards prepared for the loom where it is woven into a fabric. Practically all the movements of the machinery are automatic, the workers simply being attendants upon the machines. For the past hundred years or more the tendency has been to increase the size of the machines and accelerate the speed of production at the same time. The spinning mule itself has, no doubt, been the most improved. It should be observed that the C., so far as we have followed it, has passed through depts. all on one floor—in what are known as the blowing-room and the card-room. These processes are in nearly all cases carried on on the ground floor of the mills. It is in the upper storey that we come to the actual spinning, especially where mules only are used. The bobbins manufactured on the roving frames are conveyed to the spinning rooms above where they are fixed in long rows or creels forming part of the spinning mule. Generally two bobbins of roving are used to make one thread of yarn. The double roving passes through three sets of rollers running at different speeds, in order to stretch it still further—indeed to stretch, by the draft in the rollers, to the fineness of the actual yarn when it is given its final twist to strengthen and harden it. One spinner and two helpers—sometimes three helpers—look after a pair of mules. With the headstock or driving parts of the mule in the centre, a pair of mules consists of two long moving carriages, carrying, on an average, about 1000 spindles each. There are also smaller mules, and larger ones having as many as 1300 spindles each. The carriage of the mule is continually moving to and fro, a distance of about 60 in. out and 60 in. back again towards the rollers and the creels of bobbins. In its outward run it twists and stretches the yarn; for instance, on 60's twist, the stretch of yarn coming from the rollers is about 60 in., but the quantity wound on to the 'cop' or the spindles during the inward run of the carriages is 64 in. per stretch. The distance that the carriage travels from the rollers is called a draw, or a stretch, there being about three performed each minute. Hence each spindle winds on about 192 in. of yarn every minute; or a pair of mules of 2000 spindles, managed by one spinner and two helpers, make 384,000 in. of yarn every minute of the working day, or over 1,000,000 yds. a week. The spindles vary in speed, as the motion of the carriage does, according to the counts being spun. Generally speaking, a mill of 80,000 spindles would yield about 32,000 lb. of yarn per week. Spinning is the most interesting and the most ingenious process

referred to, so far, in the treatment of the C. In the United Kingdom mule spinning is the most prevalent. Out of a total of 57,000,000 spindles about 46,000,000 are mule spindles, the bulk of the remainder being ring-frame spindles. In most other countries it is the other way about, the ring spindles being predominant. The U.S.A., for instance, has, in round figures, 35,500,000 C-spinning spindles, of which only about 5,000,000 are mule spindles; the remainder are ring-frame spindles. The mule is capable of turning out much finer counts of yarn than the ring-frame. The principle of spinning to-day is, except for improvements, exactly as it was when invented

of C., which as soon as it had begun to pass through was received by the second rollers, which revolved with three, four, or five times the velocity of the first pair. By this admirable and simple contrivance the roving was drawn out into yarn of the necessary degree of tenuity, a twist being given to it by an adaptation of the spindle and fly of the common flax wheel. It was this invention and the jenny of Hargreaves for multiplying the spindles in one machine that established the C. factory system. Hitherto all the spinning had been done in the homes of the spinners. But the two methods were not very well adapted for the production of very fine yarns or even yarn which the



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REPLICAS OF (LEFT) HARGREAVES'S SPINNING JENNY, AND (RIGHT) CROMPTON'S MULE SPINNING FRAME

by the mechanical geniuses of the latter part of the eighteenth century. Richard Arkwright is usually regarded as the founder of the C. factory system. He directed his attention to the matter of C. spinning machinery about 1767. He erected his first mill at Nottingham in 1769, and put up one at Cromford in Derbyshire in 1771. Perhaps the most distinct departures from the old domestic spinning wheels were made by Arkwright and James Hargreaves, a poor weaver of Standhill, near Blackburn. Hargreaves invented the spinning jenny in 1764, in which spindles were fixed in a perpendicular position, or very slightly inclined. It should be also pointed out that in 1738 John Wyatt and Lewis Paul brought out a machine for spinning with rollers. Arkwright patented the spinning or water frame in 1764, which, while drawing out the carding or roving, gave to it a twist and pressure necessary to produce the hardness and firmness which fitted it so admirably to the purposes of the warp; it was also capable of producing finer yarn than had been done prior to that time. It consisted of two pairs of rollers, turned by means of machinery, the lower one of each pair being furrowed or fluted longitudinally, the upper ones covered with leather, and, pressing upon the lower, enabled them to take hold of the roving

manuf. of Brit. fabrics required in order to compete with goods of Indian manuf. The water frame spun twist for warps, but the yarn was defective in fineness and tenuity. The jenny of Hargreaves was capable of turning out weft. But the great waste of labour and time rendered a combination of the two machines eminently desirable; and it was in 1779 that Samuel Crompton, a weaver living at the Hall-in-th'-Wood, near Bolton, invented a machine which combined the essential principles of Arkwright's frame with the property of the stretching possessed by Hargreaves's jenny. Hence it became known as the mule. By means of this invention the roving was first drawn out of the rollers as in the water frame, and then stretched and spun by spindles without bobbins after the rollers had ceased to give out the rove. By this means the yarn was made finer and of a more uniform degree of tenuity. At first the mule was constructed with only twenty spindles, but by successive improvements it has been increased to 1350 spindles; and a pair of mules which form a mule jenny-gate, in charge of one spinner and two helpers, consists to-day of any number of spindles from 2000 to 2700 and 2800.

Warps for Weaving.—Warps for weaving are made up of hard twist, and weft

yarn (containing little twist) is used in the shuttles and interlaced with the warp, thus forming the cloth. Formerly the yarn was wound on to the spindles by hand; but in 1825 Richard Roberts, a Manchester engineer, perfected a system of self-action in mules which gradually dispensed with the hand-mule, of which there are very few, if any, now in existence. The self-acting mule (eventually made capable of spinning the finest counts) is now universal. However, in the above inventions one may perceive the whole principle of spinning cotton yarn. Improvements that have been added from time to time have made the mule into a very complex and highly productive machine, and the cost of a C. mule spinning mill in the United Kingdom to-day is estimated at about £2 per spindle, including the building, gearing, etc. This is higher than pre-1914 rates, following on the boom in 1919 when prices rose to as much as £7 per spindle. In contrast to mule spinning, spinning on the ring-frame, now making considerable progress in this country, is performed on a machine that has no movable carriages. It resembles the frame in the card-room employed in the preparatory processes. Unlike the mule, it spins the yarn on a continuous system, drawing the roving from a creel of bobbins. Also unlike the mule, it does not wind the yarn on a bare spindle, but on bobbins or paper tubes. From the rollers (which deliver the roving) the rove passes through thread-guides, placed over the centre of the spindle, and is wound upon the spindle by means of a ring and traveller. The ring is borne upon a movable rail, which moves upwards and downwards, thus providing the necessary traverse for the building of the cop of yarn. Hence the origin of its name. The ring-frame is mostly used for coarse, and sometimes medium, counts of yarn. Counts of any number can be spun on the mule, from 1's to upwards of 350's. The term count means one hank of 840 yds. of yarn, or one pound in weight. Hence 350's mean 350 hanks of 840 yds. each to the pound. As a further example, 40's count of yarn means 40 hanks to the pound. The finer the yarn, of course, the more hanks are required to make up one pound in weight. As a rule, fine yarns (that is over 50's and 60's counts and spun from Egyptian C.) are made from double roving, as compared with a single thread for counts below 50's and 60's. Yarn as delivered by the spinning machines is unsuitable, both in form and condition, for immediate conversion into cloth. There are various methods of warping—that is, the making of the warp and attaching it to the loom. In fact, after C. yarn has been spun on the mules, it has to undergo almost as many processes to prepare it for the loom as it had to go through in making it suitable for the mule. The yarn cops are first of all wound upon warping bobbins, there being various types of machines for this purpose. This is followed by warping, which consists in placing the thread together to form a warp in a manner that it can be

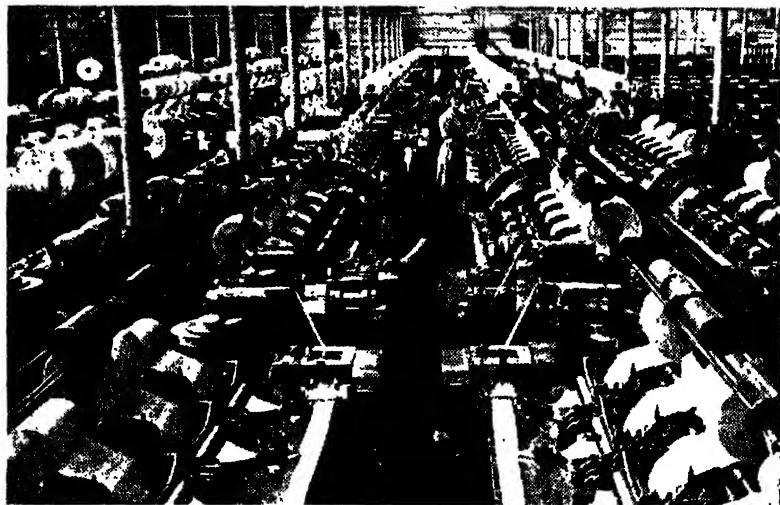
evenly wound upon the beam of the weaver's loom.

Sizing of the Yarn.—Next comes the sizing of the yarn; this is an important feature. It is necessary that all single-twist warp yarns should be sized. The object is to increase the strength and smoothness of the yarn to enable it to bear the strain of weaving; sizing also increases the weight and bulk of the yarn and improves the appearance of the cloth. Among the substances used are flour, starch (from wheat, rice, sago, maize); dextrine and gum tragacanth are also used. For making the yarn soft and pliable mixings are applied containing tallow, grease, oils, wax, soap, and glycerine. For weight china-clay, barytes, and Fr. chalk are added. Zinc chloride is one of the substances put in to prevent mildew. Magnesium chloride, calcium chloride, glycerine, and common salt are used to help the cloth to retain the qualities given to it by sizing, which has now become of a far more scientific character than formerly. The main secret, however, of getting the right sizing is in the boiling. There are sev. makes of machinery for applying the size to the yarn, also for drying the yarn afterwards. The warps for weaving are made of single threads mostly, but sometimes of doubled yarn; for doubling there is special machinery. The object is to give the threads a twist in the opposite direction to the twist of each single thread; this renders the doubled yarn stronger, smoother, and more elastic than a single thread would be that is equal in counts to the doubled thread. Doubled yarn is mostly used in sewing C. and lace, and in making heavy fabrics like sail-cloth. Yarn is also gassed before being woven. It is run through gas-flames to take off all loose fibres adhering to the surface. Yarn is gassed principally for the manu. of sewing threads, lace, and mercerised goods. Before weaving also yarn that has to undergo bleaching or dyeing is reeled into hanks of a suitable size. Yarn for export purposes is also reeled into hanks of 840 yds. of yarn each.

Weaving.—Weaving is an ant. art. Woven goods were used by the Egyptians over 6000 years ago. Woven cloth has been preserved as specimens of work of the lake dwellers of prehistoric times. The shuttle is mentioned in the Bible and other ant. books. The art of weaving consists in interlacing a continuous thread amidst a series of parallel threads. No doubt weaving was carried on in its primitive forms till the invention of the fly-shuttle by John Kay of Bury in 1733. Before this shuttle with its apparatus for sending it to and fro across the lathe of the loom, it was the custom to have two weavers for each loom, one at each end to throw back the shuttle. With Kay's introduction one weaver could manage a loom, and double the quantity of cloth woven each day. Of course, the invention was adapted to the hand loom. The steam power loom was first constructed by Dr. Cartwright, who was granted a patent in 1785. Kay had to fly from the

country on account of the attitude of the workers towards inventions that displaced labour. Cartwright's first looms were also destroyed by mobs of working men. In 1813 there were about 2400 power looms in the United Kingdom; in 1914 there were 805,452 looms engaged in C.-weaving; in 1929 there were 739,887, the proportion of the world's looms owned by Great Britain having decreased by over 3 per cent since 1914. In the U.S.A. there were 747,379 looms in the same year. Like spindles in spinning, looms have continued to increase in speed.

cheek, 1838; improved temple, 1840; further improved weft fork, 1841; loom brake, 1845; automatic let-off, 1837; rocker motion, 1859; loose frog, 1863; double beam let-off, 1867; practical self-threading shuttle, and broad loom shuttle motion, 1868. These patents form the basis of automatic weaving. Improvements have been added to them from time to time, the most effective being the drop-box motion, to operate the rising and falling of the shuttles according to their use for putting in different shades and colours to make up the patterns of



Cotton Board, Manchester

'COMBERS' IN A MODERN COTTON FACTORY

Prior to the invention of Kay's fly-shuttle, looms did not average twenty picks per minute. A pick is the passing of the shuttle containing cops or spools of weft through the opening of the warp threads carried by the operation of shedding; or, in simpler language, a pick is the passage of the shuttle across the looms.

Weaving is generally divided into the manuf. of grey goods and coloured goods. The quantity exported each year amounts to about 80 per cent of the total production in the United Kingdom. The loom invented by Cartwright gave the first suggestions of all the automatic motions that have been added to looms since, such, for instance, as warp-stop motions, weft-stop motions, let-off and take-up operations. The complete power loom was constructed by Richard Roberts in 1830. Other prin. inventions that have been added to looms are shedding motion, 1803; revolving temple, 1816; multiple harness motion, 1821; weft fork, 1821; first automatic shuttle changer, 1834; improved weft fork, 1834; picker

the cloth. Various labour-saving introductions have made it comparatively easy for one weaver to manage four and six looms, as in the ordinary Lancashire loom, to sixteen and twenty-eight, and even up to thirty-two as in the latest Northrop type of automatic looms. Other processes enter into the manuf. of C. fabrics which hardly come within the scope of this article. These include bleaching, dyeing, printing, finishing, and mercerising, as well as testing yarn and cloth by chemical means.

The Cotton Bale.—Bales of raw C. are packages of highly compressed C., together with its impurities and short fibres. Up to 5 per cent of a bale is not C. at all, but waste matter such as leaf, seed coatings, dust, etc. An estimate of the amount of such waste is made before the bale is bought, but such an estimate is rarely accurate because it is made by mere inspection, and even a mistake of a half of one per cent may cause serious loss when bales are bought by the thousand. But an answer to this problem seems to have

been found in the laboratories of the Brit. C. Industry Research Association at the Shirley Institute, Manchester. A machine called the Shirley analyser has been produced which indicates the amount of raw C. by completely separating it from the waste. This it does by utilising the difference in buoyancy between the C. fibre and the waste in moving air. The raw C. is fed into the machine and introduced into a uniform, controlled stream of air. The heavy waste falls through this stream into a receiving tray, but the more buoyant fibres of C. are swept on by the stream to a collecting drum. The two are then weighed, and thus the proportion of waste in a single bale is known. If the bales all belong to the same consignment the percentage of waste in the one which has been tested is taken as that for the whole.

Mercerising.—Mercerising was invented in 1850 by John Mercer (see MERCERISED COTTON), a calico-printer of N.E. Lancashire. There are now many patent methods in use. The process of mercerisation is to give to C., yarn, and cloth the appearance of silk, to prevent shrinkage, and to give to the vegetable fibres a greater attraction for dyes. In many cases mercerised C. has displaced silk; indeed, it has such a lustre that it can be scarcely distinguished from silk. Mercerisation also increases the strength of yarn and cloth. Its action is to remove such resistance to dyes as arise from wax, oil, and other natural colouring substances always present in C. fibres. As a result of mercerisation the yarn has been noticed to have increased in strength to the extent of 50 per cent. The bleaching, dyeing, and finishing of C. have developed considerably of recent years. The bleaching is now carried out at all stages of manuf.—those of raw C., slubbings, rovings, cops, cheeses, hanks, and warps, and in the cloth pieces. By far the greater quantity, however, is bleached in a woven state. Dyeing also is now carried on at all stages of manuf. Of late years, the practice of dyeing yarns in forms other than in hanks has grown considerably. The development has not only increased economy in the cost of production, but also through the gradual introduction of a whole range of colouring matters faster than the majority of the direct dyes, and almost as readily applied. There are sev. methods of bleaching, but the old chloride of lime bleach is still the most successful, both in regard to results and cost. Calico printing is now carried on extensively. In this process there are four distinct operations as follow: Preparation of the cloth for printing; application of the colouring matter; the fixing of the colouring matter; and the finishing. The printing rollers are engraved in various ways. Hand engraving is applied mainly to very fine work. The pentagraph method is used for bold designs, this being an etching process on a coating of varnish. Photo-etching is also applied for transferring the necessary design on to the copper rollers used in the printing machines. Fine designs are also im-

planted on the roller by a process of milling; in this case the copper roller is run over hardened steel rollers which contain a relieved impression of the required design.

THE BRITISH COTTON INDUSTRY.—This is carried on mostly within a radius of thirty or forty miles of Manchester, where the humidity of the atmosphere is highly suitable for spinning and weaving. The area also has a good supply of coal and water. Spinning is done in S. Lancashire, principally in the dists. of Manchester, Oldham, and Bolton. Oldham tn. is the centre of the coarse-spinning area, and Bolton is the centre of the fine-spinning area. C. weaving is mostly confined to the N. and N.E. of Lancashire, the prominent dists. being Blackburn, Preston, Burnley, Nelson, and Accrington. Blackburn and Burnley dists. have about 100,000 looms each. C. knitting and lace making are carried on in Derby, Leicester, and Nottingham, and sewing thread is manufactured at Paisley in Scotland. The capital invested in the Brit. C. industry had decreased in 1929-1930 by 10 per cent since the boom of 1920. Ten years of depression had been caused by foreign competition, especially in the Far-E. markets. About 40 per cent of the pre-1914 export trade had been lost, and home consumption only amounted to about 25 per cent of the C. goods produced in Lancashire. Exports to India dropped by half, owing to Indian home manuf. and to Jap. competition. Some few years before the Second World War the Brit. Gov. somewhat improved the Brit. colonial market for Lancashire C. piece goods by a system of quantitative restriction of imports specially directed against Jap. imports into the Brit. colonies. There was a further sharp decline in the Brit. C. industry following the world economic depression of 1930. The decline in the C. industry of the United Kingdom in the eight years 1930-37 is shown in the following totals of operatives for those years: 1930, 564,090; 1931, 550,110; 1932, 517,950; 1933, 499,930; 1934, 467,440; 1935, 442,400; 1936, 420,350; 1937, 408,580. Brit. exports of C. piece goods in 1937 were rather less than one-half of what they were in 1928, and though there has been in recent years a larger demand from the home trade, it has not compensated for any considerable proportion of the loss of 1,900,000,000 sq. yds. of overseas business. In 1928 India took more than two-thirds of the shipments to Brit. countries; in 1937 it took less than one-third of those shipments, and this is the chief influence in bringing about the decline in Lancashire's C. trade. The year 1938 proved to be the worst for the export of C. piece goods since 1860, and the worst for yarn exports since the C. famine of the early 1860's. The production of C. yarn fell by 22 per cent, the production of C. piece goods by at least 25 per cent, exports of yarn by 23 per cent, and exports of C. piece goods by 23 per cent; and the decline in the production of C. piece goods for the home

Type of Product	1938
Cotton yarns:	
grey and unbleached	110,002,900 lb.
bleached and dyed	12,947,300 lb.
Cotton Manufs.: woven piece goods:	
grey unbleached	446,678 cwt.
white bleached	633,365 cwt.
printed	306,281,000 sq. yds. or 494,006 cwt.
dyed in the piece	368,777,000 sq. yds. or 837,286 cwt.
Manufactured wholly or in part of dyed yarn and commonly known as coloured cottons	78,581,000 sq. yds. or 177,904 cwt.
Lace and lace net	24,943,900 sq. yds.
Finished threads	13,502,255 lb.
Handkerchiefs	16,742 cwt.
Other goods, including surgical dressings, cotton cleaning waste, etc.	—

QUANTITIES AND VALUES OF UNITED KINGDOM EXPORTS OF COTTON

market was almost as great. In 1939 a Cotton Industry (Reorganisation) Bill was introduced by the president of the board of trade. Its chief aims were to reduce the excess capacity in the C. industry, the result of serious contraction suffered in the last twenty-five years, which overlay the markets, and to counteract weak selling by schemes of price-fixing. Admittedly an imperfect measure, the Bill at least represented a united effort to remove the evils due to excessive individualism. Owing to the outbreak of war, however, the Bill was postponed by a special Act passed at the end of Oct. 1939. The Cotton Industry Act, 1940, provides for setting up a board to perform specified services for the benefit of the C. industry. Among the services specified are advertising to stimulate exports, research and experiments relative to the manuf. or consumption of the products of the industry, and the collection and pub. of statistics. The Act also provides for payments by C. spinners to meet the expenses of the board and to help the Empire C. Growing Corporation. The Amer. C. industry is in a flourishing condition, owing to the large domestic consumption of C. goods, the use of automatic machinery, and the enterprise which discovers new uses for C. products. In 1927 (the peak year) the U.S.A. exported 564,883,855 sq. yds. of C. cloth, valued at \$76,788,437. The quantities and value of United Kingdom exports of C. yarns and manufs. in 1938 and 1948 are shown in the table above.

The use of C. in England for manufacturing purposes dates back to the thir-

teenth century. The first account that can be traced of the importation of raw C. was in 1298. In all probability it was brought from Portugal, and was used exclusively in the making of candle wicks. But at the commencement of the fourteenth century practically all our C. and woollen fabrics were sent from other European countries. Flemings were encouraged to come to England by Edward III. in 1328, and they settled in Manchester and laid the basis of the Brit. manuf. of C. goods. They founded what became the famous 'Manchester Cottons,' and as is now well known, Manchester developed into, and still remains, the world's greatest 'cottonopolis.' It was these imported Flemings that paved the way for the valuable mechanical inventions, mostly of Lancashire origin, that gave the Brit. textile trade a start of all other nations. For the first thirty years of the eighteenth century practically no progress was made in the C. industry in England. The importation in 1790 was 30,000,000 lb., and 459,000,000 lb. in 1840. But eight years later commenced those great inventions which revolutionised the manufacturing world, and upon which, along with the steam and engineering inventions of James Watt, the C. factory system was founded. C. goods are now exported by Britain to about fifty countries. Britain's chief markets for C. piece goods are India, Australia, Brit. W. Africa, Netherlands, Dutch E. Indies, Argentine, Switzerland, Egypt, and China. With regard to the number of persons employed in the C. industry of the United Kingdom, the

1948	1938	1948
	£	£
53,215,100 lb.	8,395,379	14,905,726
5,848,800 lb.	1,279,532	1,861,256
133,386 cwt.	3,841,434	4,636,401
345,271 cwt.	7,776,104	17,557,361
344,508,000 sq. yds. or 528,450 cwt.	7,735,803	37,909,904
181,089,000 sq. yds. or 511,271 cwt.	10,628,215	24,739,195
56,487,000 sq. yds. or 139,419 cwt.	2,563,717	2,613,303
32,397,900 sq. yds.	548,830	3,083,683
12,241,344 lb.	3,496,993	10,473,668
13,115 cwt.	575,569	1,993,208
—	2,839,138	5,504,093
Total value	49,680,714	131,177,798

YARNS AND MANUFACTURES FOR THE YEARS 1938 AND 1948

Balfour Committee report records 569,000 in 1927, 40 per cent male and 60 per cent female. In 1936 the total number of employees was 398,677. In 1938 29.8 per cent of insured persons in the C. industry were unemployed. Hours of labour are forty per week.

Government Controls.—No C. yarn may be spun in Britain without gov. approval given according to the purpose for which the product will eventually be used. But since the end of the Second World War there has been some relaxation in controls in the elaborate and detailed direction estab. in the third year of the war. It seems to be agreed among manufacturers and merchants that the harm to the industry is not that the controls have been retained but that the changes in the system have generally been belated, so that on balance the system has probably done more harm than good, though it is generally admitted that any system of gov. control is bound to lag behind the times. To-day it is assumed that the C. industry's important job is to earn foreign exchange, especially dollars; but this was a revolution in gov. policy and is the opposite of the purpose for which the mechanism of detailed control was started. Until 1941 the spinners and manufacturers remained free to accept what orders they wished. Then they were turned over to war work by means of 'preference directions,' the gov. ordering them to give preference to contracts for war work (including, before lend-lease, exports) to the neglect, if necessary, of other contracts. This system, however, broke down because the preference directions took all

of the reduced production, and supplies of civilian clothing became so small that rationing was necessary. It was at that point that the gov. began to allocate the output of C. goods, allowing firms to accept only authorised orders. Complete 'planning' of production began in 1942; its objects were to ensure that enough C. goods were produced for the forces (including, later, demobilisation clothing), for use by other industries, and for the civilian clothing ration. Exports, were, in general, unimportant. Until 1947 the (Labour) Gov.'s chief aim in controlling the C. industry was to keep down the price of clothing. Its second aim was to increase the clothing ration and its third aim was to supply C. goods to the colonies, where they were urgently needed to give people something to work for and to check inflation. Exporting on commercial principles, the earning of useful foreign exchange, and the rebuilding of Lancashire's trade connections received little attention; and it was not until the convertibility crisis of 1947 that the gov. began to look to the C. industry for dollars. The gov.'s critics, however, suggest that since its awakening to the need to earn dollars, the gov. has been reluctant to alter the controls to fit the new policy, and that the most conspicuous example of this reluctance is the retention of export licensing, which was only stopped in 1949. Some manufacturers and merchants think that exports would now (1949) be bigger if all the controls were lifted from the industry and that Lancashire would then have a better chance of holding its trade in the face of reviving foreign competition.

The core of the gov. control of the C. industry is the utility scheme. This applies to almost all the C. goods made for sale in the shops, either as cloth or as finished garments. About three-quarters of all cloth made for the home market must be utility—that is to say, it must be made according to detailed specifications laid down by the gov., fixing the structure of the cloth, the type and count of yarn from which it shall be woven, and the method of finishing. The gov.'s reason for keeping on the utility control is that it is a convenient instrument for controlling prices. The aim of the scheme was, in fact, from its inception to keep clothing at home as cheap as possible, and gov. policy in this connection (1949) still in practice puts that need before the need to export.

The *Race Cotton Commission*, appointed in 1948, was the (Labour) Gov.'s first experiment in state buying as a permanent policy, though it has not yet entirely justified itself in the eyes of its supporters. The case for appointing the commission was based on sound criticisms of the C. market, but the validity of the gov.'s promise that the spinners would be assured of a long-term stability in the prices of their materials may be judged from the fact that the commission has altered its price-list nearly a score of times in the first year of its existence. So far (1949) the Lancashire spinner has not suffered any direct loss or made any direct gain from the commission's change in prices; for if he has signed a contract to sell yarn and before he has bought the necessary raw C. its price rises the commission pays him the difference between the new price and the old; if the price falls he pays the commission. Conversely, if the spinner is holding stocks of C. without orders for yarn, he pays the commission when the price rises and is paid by them when the price falls. That this 'cover' scheme gives the spinner better protection than he got by 'hedging' on the Liverpool 'futures' market was one of the gov.'s strong arguments in 1946 when many dealers were pressing for the Liverpool market to be reopened. So far, however, the scheme in its present form has proved unworkable and in any case applies only to the spinner, for the manufacturers and merchants of clothing have no protection from changes in the price of raw C., though before 1939 they were able to cover themselves by dealing in futures, and some occasionally did so.

COTTON GROWING IN THE U.S.A.—The growing of C. and its manuf. have for many decades played a very large part in the economic life of the U.S.A. Although the farmers of the S. states vary their crops, C. is still by far the most important element in farming in the S. The total ann. value of the C. crop of the U.S.A. has averaged something like \$1,500,000,000. The leading C. states are Texas, with 6,100,000 ac. devoted to its growth and producing over 1,650,000 bales; Mississippi, over 2,280,000 ac. and 1,040,000 bales; Arkansas, 1,625,000 ac. and 1,240,000 bales; Alabama, 1,520,000 ac., and 800,000

bales; Georgia, 1,045,000 ac. and 555,000 bales (compared with a previous average of 956,000 bales); N. Carolina, 378,000 ac. and 420,000 bales; S. Carolina, 925,000 ac. and 695,000 bales; and Oklahoma, 520,000 ac. and 260,000 bales.

In the early days of C. manuf., the raw material was grown in the S. and manufactured in the N., principally in the New England states which had almost a monopoly of the business. Since the First World War a veritable revolution has taken place in the industry. With water power, cheap coal, and cheap labour in the S., it suddenly occurred to business men that it was more economic to manuf. C. right in the section where it was mainly grown. The result is that to-day the S. has more spindles in operation than New England. Recent figures showed the S. with 15,000,000 spindles as against 9,000,000 in the New England states. N. Carolina had 5,740,000 spindles; S. Carolina, 5,586,000 spindles; Massachusetts, 4,204,000 spindles; Georgia, 3,140,000 spindles; and Rhode Is. 1,768,000 spindles. The average number of active spindles is about 25,000,000. See also under DYES AND DYE-STUFFS.

See G. Watt, *The Wild and Cultivated Cotton Plants of the World. A Revision of the Genus Gossypium*, 1907; W. Balls, *The Cotton Plant in Egypt*, 1919; W. E. Dodd, *Cotton Kingdom*, 1919; G. W. Daniels, *The Early English Cotton Industry*, 1920; B. Bowker, *Lancashire under the Hammer*, 1928; A. P. Wadsworth and J. de L. Mann, *The Cotton Trade and Industrial Lancashire, 1620-1780*, 1931; Political and Economic Planning, *The British Cotton Industry*, 1931; H. B. Brown, *Cotton*, 1937; J. T. Marsh, *Mergerising*, 1941; I. Moberg, *The Cotton Loom Ficer's Manual*, 1942; H. Hargreaves, *A List of Recorded Cotton Insects of the World*, 1948; and *The Cotton Year Book* (ann.).

Cotton Weed, or *Dicotyles maritima*, is found chiefly on rocks round the coast of Britain, W. Europe, and the Mediterranean. It is a perennial, and is covered with long silky hairs. It belongs to the family Compositae.

Cotton Wool, name given to C. in its raw, woolly state as gathered from the balls or capsules of plants of the genus *Gossypium* and family Malvaceae (*Gossypium herbaceum* or *album*, *G. barbadense* or *nigrum*, *G. arboreum*). It consists of the soft, downy fibres (3 to 2 in. long) surrounding the C.-seeds. These hairs or fibres are separated from the seeds and freed from impurities, wax and fatty matters being removed by boiling in dilute caustic potash. Bleaching-powder and hydrochloric acid are used in preparing C. W. for use, and it is frequently washed. Prepared sheets or rolls of it are used like C. batting for stuffing and quilting. A soft, downy substance resembling fine wool, it is usually enclosed between glazed surfaces for such purposes, not very thick, and sold by the yard. A specially prepared kind is used in surgery for dressing wounds, etc. It is absorbent, soft, and elastic, and is often steeped in disinfectants. See COTTON; WADDING.

Cotton-worm, popular name of the larva of *Atelia xylinæ*, a species of Noctuidæ, or owlet-moths, nearly allied to the army-worm. This caterpillar is to be found in both N. and S. America, where it ravages the cotton crops and leaves other plants alone. The destructive nature of this creature sometimes costs the U.S.A. sev. millions of dollars in one year.

Cottrell-Lodge Method, method of precipitating dust and smoke particles by a high-tension electric discharge, discovered in 1883 by Sir Oliver Lodge, and developed on an industrial scale by Lodge and Cottrell. It is used to purify the fumes from cement and other furnaces, sulphuric acid works, smelting plants, factories, and so on. The apparatus consists of chambers containing electrodes maintained at high voltage, e.g. 75,000, and the dust particles are attracted to these electrodes. From time to time the deposited solid is shaken off by the action of an automatic hammer. The C. M. not only helps to purify the atmosphere of industrial dists., but enables valuable solid by-products in the fumes to be collected easily: thus the rare metal thallium is obtained from the flue dust of sulphuric acid works.

Cottus, the genus of acanthopterygious (spiny-finned) fishes, which includes the bull-heads and miller's thumbs, is typical of the family Cottidæ. The species are to be found round the coasts and in fresh water of the N. temperate zone. *C. gobio* is the common bull-head (q.v.) of streams in Britain.

Cotyledon: 1. Genus of plants belonging to the order Crassulaceæ. They are to be found in most parts of the world, especially S. Africa, and owing to their succulence they grow in dry situations, on rocks, walls, etc. There is only one Brit. species, *C. umbilicus*, the wall pennywort, common chiefly in the W. and S. of England; this has a spike of greenish-yellow pendulous flowers which often take on a pinkish tinge when fading; it flowers throughout the summer. 2. The seed leaf of a plant. In some plants, e.g. broad bean, the Cs. are the lobes of the seed itself, and contain a store of food for the embryo on germination; the existence of one or more Cs. is the basis on which flowering plants are divided into the two classes of Monocotyledons and Dicotyledons.

Cotys, or **Cotyto**, Thracian goddess, whose festival, the *Cotyttia*, was celebrated during the night and which resembled that of Cybele. She was afterwards worshipped at Corinth and Athens.

Coucal, or **Centropus**, genus of bush-birds of the family Cuculidæ; the species inhabit Asia, Africa, and Australia. They are strong-billed birds which feed on small animals, from insects to young birds, and in habit they are chiefly terrestrial. Unlike many of their allies (the cuckoos) they build their own nests. *C. sinensis*, the crow-pheasant, is an Asiatic species.

Cough, Sir Arthur Thomas Quiller, see **QUILLER-COUGH**, SIR ARTHUR T.

Couchant, term in heraldry, used to describe the position of a beast lying down with its head up. If its head rests on its paws it is dormant.

Couch-grass, or *Triticum repens*, weed which infests agric. lands. The name is a corruption of quitch grass or quick grass. The root contains sugar, and is used medicinally.

Coucy le Château, Fr. tn. 10 m. due N. of Soissons. The fine castle was destroyed in the First World War by the Gers. when they withdrew to the Hindenburg line in March 1918. During the final Ger. offensive it was taken in April 1918 by the Ger. forces in their attack on the Aisne-Oise Canal.

Coucy, Raoul (Renaud) de, Fr. troubadour of the twelfth century, who became Châtelain de C. in 1186, and took part in the Third Crusade (1189-91), being killed by the Saracens in 1203. His few songs were pub. by Fath as *Die Lieder des Châtelain von Coucy* (1883). He was the hero of *Le Roman du Châtelain de Coucy et de la Dame de Fayel*, a romance of the fourteenth century (perhaps by one Jakemon Sakesep). Crupellet's ed. appeared in 1829, a reprint in 1895. See G. Paris, *Romania*, viii., 1879.

Coué, Emile (1857-1926), apostle of auto-suggestion as a method of cure for disease, was b. in Troyes, in the dept. of Aube, France. He carried on business as a chemist at Troyes, 1882-1910, and was led, by an accidental occurrence in his business, to belief in the curative power of imagination and expectation. His fame was almost entirely due to his sincere simplicity and charity. He opened a free clinic at Nancy in 1910, and after the First World War lectured throughout France and in England and America—on his famous text 'Day by day and in every way I am growing better and better.'

Coueron, tn. of France, situated on the Loire, in the dept. Loire-Inférieure. Pop. 8,600.

Coues, Elliott (1842-99), Amer. ornithologist and biologist, b. at Portsmouth, New Hampshire, U.S.A. He was prof. of anatomy at Washington and founded the Amer. Ornithologists' Union. His chief works are *Key to North American Birds* (1872); *A Field Ornithology* (1874); *Birds of the North-west* (1874); *Birds of the Colorado Valley* (1878); *New England Bird Life* (1881), and *Dictionary of North American Birds* (1882). He also pub. a notable vol. on N. Amer. mammals, *Fur-bearing Animals* (1877) and sev. works on early travel in the W.

Cougar, or **Cougaur**, see **PUMA**.

Cough, explosive expulsion of air from the respiratory passages produced by reflex action. The nerves of the mucous membrane lining the upper air passages are particularly sensitive to irritation caused by foreign substances or inflammation. The action of coughing consists of a deep inspiration; followed by the closure of the glottis. The expiration suddenly bursts open the glottis, producing a current of high velocity which tends to sweep obstructive particles outwards

through the mouth. The action—which is automatic, although it can be modified by voluntary efforts—normally has a salutary effect in preventing these particles reaching the lung field and setting up foci of infection there. It may, however, lead to excessive disturbance and exhaustion in some diseases unless controlled by morphine or other respiratory depressants. Coughing may be caused by irritation in the nasal passage, pharynx, larynx, trachea, bronchial tubes, or lungs, due to the presence of particles of dust or food, or to inflammation caused by a cold. The breathing of acrid vapours has the same effect, and gastric or purely nervous disturbances may constitute a cause. Some varieties of C. may be recognised by their characteristic sound: pleurisy gives rise to a half-suppressed C., bronchitis causes a loud and explosive C., whooping C. is accompanied by a violent inspiration, which causes the characteristic whoop, while the purely nervous C. has an affected sound. The treatment depends on the predisposing cause, as it is often inadvisable to check a C. as such. It is to be observed, however, that continued coughing produces an ultra-sensitive condition of the respiratory passages, and, as so often happens, nature's method of eliminating irritating substances may be too vigorous for the comfort of the organism as a whole. In young children coughing may produce hernia, and there is possible danger of rupture of blood-vessels in consumptive patients. Remedies fall into two classes: those tending to help in the expulsion of irritating substances, and those tending to allay the sensibility of the nerves causing coughing. Examples of the former class are such expectorants as ipecacuanha, tartar emetic, and squilla, while preparations of opium, aconite, and bromides act as sedatives.

Couillet, com. of Belgium, Hainaut prov., very near Charleroi. It has coal-mines, chemical works, ironworks, and furnaces. Pop. 12,900.

Coulanges, Numa Denis Fustel de, see FUSTEL DE COULANGES.

Coulmiers, vil. of Loiret dept., France, 12 m. from Orléans. In 1870 the Bavarians under von der Thann were defeated here by Aurelle de Paladines. Pop. 315.

Coulomb, Charles Augustin de (1736-1806), Fr. scientist, b. at Angoulême. He is well known for research work in connection with magnetism and electricity, and he invented the torsion balance for measuring the force of electric and magnetic attraction. In 1779 his essay, *Théorie des machines simples*, secured a prize offered by the Academy, of which he afterwards became a member.

Coulomb, practical unit of quantity of electr. city, being the quantity conveyed by a current of one ampere in one second. It is so called after the famous Fr. physicist and engineer.

Coulommiers, tn. of France, in the dept. of Seine-et-Marne, 13 m. S.E. of Meaux. It has printing works, sugar refineries, and Brie cheese manuf. Pop. 6600.

Couldson, urb. dist. of Surrey, England, about 4 m. from Croydon. Pop. 40,000.

Coulter, John Merle (1851-1928). Amer. botanist and educationalist, b. at Ningpo, China. Educated at Hanover College. Botanist on the U.S.A. Geological Survey in the Rockies, 1872. President of the Amer. Association for the Advancement of Science (q.v.) in 1918. Pubs.: *Plant Relations* (1899, 1910); *Plant Structures* (1899, 1904); *Plant Studies* (1902, 1904); *A Text Book of Botany* (1906); *Manual of Rocky Mountain Botany* (revised ed., 1909); *Fundamentals of Plant Breeding* (1914); *Evolution in Sex Plants* (1914), and *Plant Genetics* (1918).

Coumarouna odorata, or *Dipteryx odorata*, species of Leguminosæ which yields the sweet-scented tonka bean of the perfumers. It is a native of Fr. Guiana, where it forms a large forest tree, locally called coumarou. The Creoles string the seeds into necklaces and also put them among their linen, both for their scent and to keep away insects.

Council Bluffs, city of S.W. Iowa. U.S.A., cap. of Pottawattamie co., near R. Missouri, on the Union Pacific. Chicago and N.W., and other railways. Railway bridges connect it with Omaha, Nebraska, across R. Missouri. High bluffs affording a magnificent view border it on the E. There is a state institution for the deaf and dumb. The manufs. include iron, agric. implements, machinery, wire-fencing, and carriages. It has large cattle yards, flouring mills, and grain elevators. Pop. 41,400.

Council of Industrial Design, see DESIGN.

Council of National Defense (U.S.A.), body created by Act of Congress in Aug. 1916, and inaugurated in the spring of 1917, to co-ordinate the industries and resources of the nation. It included the secretaries of war, navy, interior, agriculture, commerce, and labour, and it was responsible for the creation of sev. organisations, each of which had special functions bearing directly on the successful prosecution of the war. The C. was assisted by an advisory commission. The principle underlying its formation was adopted throughout the States, and state Cs. of N. D. were formed with duties similar to the parent body.

Council of Ten, see TEN.

Councils, Church (Lat. *concilium*, from *cum*, together, and root *cal*, to call), assemblies of eccles. dignitaries for the purpose of regulating some point of faith or discipline. The hist. of C. C. can be carried back to the second century A.D., when the churches of Asia Minor held C. to decide against Montanism. These early C. were evidently of a somewhat informal nature. Neither their composition nor their jurisdiction was clear. At various times more important C. comprehending a diocese or a prov. were called, but the rise of oecumenical C. throws these into the background. These general C. were convoked by the emperor. Bishops alone, or the representative priests or deacons of absent bishops, had the right to vote in early time. Abbots were later

included, and cardinals who held no bishopric. At the Vatican Council cardinals, bishops, and generals of religious orders were allowed to vote. There is not the slightest proof that the papal legates exercised the presidency. Even Ultramontane writers of the Rom. Church agree that there is no more than a probability that they did so at Nicaea. The question as to the superiority of the pope to an oecumenical council was hotly contested during the Middle Ages, but Rom. Catholics have now had the matter settled for them by the Vatican Council. Many medieval theologians also held that the decisions of a general council were only binding when they were received as such by the whole Church, and this practically resolves itself into a question as to which C. are oecumenical. St. Augustine, in a treatise against the Donatists, affirms that plenary C. assembled from the whole Christian world may be corrected, but by the beginning of the seventh century it was generally held that general C. were infallible. The modern Rom. Catholic theory is that the decrees of a council only become binding when ratified by the pope. Though there is some difference in the manner of numbering the oecumenical C., the following method, that of Hefele, is the one generally adopted in the Rom. Church: (1) The first of Nicaea (A.D. 325), held in the height of the Arian controversy at the summons of Constantine, drew up the major part of the Nicene Creed. (2) The first at Constantinople (381) completed the Nicene Creed, defining the divinity of the Holy Spirit. (3) The Council of Ephesus (431), held to defend the faith against the Nestorians, safeguarded the personality of Christ by giving the title of *Θεοτόκος* (Mother of God) to his mother. (4) The Council of Chalcedon (451) condemned the opposite heresy of Eutyches. (5) The second of Constantinople (553), held against Nestorianism. (6) The third of Constantinople (680) condemned the Monothellite heresy. (7) The second of Nicaea (787) was concerned with the iconoclast controversy, and defined the respect to be paid to images. (8) The fourth of Constantinople (869) attempted to secure the peace of the E. and W. Churches by deposing Photius of Constantinople, who had unjustly obtruded himself into this see. These eight C. were convoked by the emperor, and the first seven alone are recognised by the E. Churches. All the rest are subsequent to the great schism. The four Lateran C. (Nos. 9-12) dealt with questions of discipline and condemned the Waldenses and Albigenses. The dates are 1123, 1139, 1179, 1215. In 1245 was held the first of Lyons (No. 13), in 1274 the second of Lyons (No. 14). The fifteenth council was held at Vienne in 1311. The sixteenth, the Council of Constance (1414-18), ended the scandal of the rival popes. Then came the C. of Basle (1431 ff.) and Ferrara-Florence (1438-41), usually combined as No. 17. The C. of Lateran V. (1512-17) and Trent (1545-63) were reforming C. The twentieth, held at the Vatican in 1869, defined

the infallibility of the pope. The great work on the subject is K. J. von Hefele's *Konziliengeschichte* (7 vols.), 1855-74, completed by J. Hergenrother, 1887-90.

Countdouriotis, Paul (1855-1935), Gk. admiral and president; b. in the isle of Hydra. Successfully commanded navy in Balkan war of 1912-13. Minister of marine, 1915 and 1917-19. Regent on death of King Alexander, 1920; and again on departure of King George II., Dec. 1923. In April 1924 proclaimed president. Resigned March 1926, but resumed on Aug. 25. Re-elected June 3, 1929. Resigned Dec. 9, 1929.

Counsel, see ADVOCATE; BARRISTER.

Counsellor, in law, one who gives advice in legal matters, now always termed counsel. The term C. is retained as the full description of a king's counsel in the ceremony of calling new 'silks' within the Bar. The peers of the realm are hereditary Cs. of the Crown.

Count (Lat. *comes*, a companion), name derived from classical times, practically synonymous with the Eng. word earl of the present day. In the earliest times it was merely the name given to an attendant, but those who were the attendants of the Rom. emperor came, by reason of their office, to be much more important officials than mere attendants, hence the meaning of the word changed slightly. This was also the case under the Emperor Constantine, who made the word a title of some of his officials. Under the king of France the word also meant more than attendant, the *comes palatii*, or C. of the palace, being the second highest official of the state. He eventually came to act as the representative of the king during the absence of the latter. This same title was used also in other countries, and the Cs. palatine, as they were called, ruled over certain provs. and made the title hereditary by handing it down to their eldest son. Later on, however, in France there were numbers of people who bore the title of C., many of them merely assumed by the people who owned them, and so pure courtesy titles. This title, however, does not exist in England, the nearest approach being that of an earl's wife, who is a countess. In Germany the Graf seems to have been identical with the C. of other countries; the word still remains in the Eng. words margrave (or marquess) and landgrave.

Counter: 1. (Lat. *computare*, to reckon). Round piece of metal, wood, or some other substance, used by the ancients in making calculations, now only for reckoning points in card games, gambling games, etc. From the original sense of a means of counting money comes the use of the word in shops for the barrier across which goods and change are handed. 2. Circular parry in fencing (from Lat. *contra*, against). 3. Blow given as a parry to the opponent's lead in boxing.

Counterfeit, see COINING.

Counterfort, term used in architecture to denote a buttress or arch built against a wall to strengthen it. Cs. are frequently used when outward pressure is exerted on the opposite side of the wall by heavy

constructional work, and in terraces to resist the pressure of soil.

Counterguard, term used to designate the rampart built lower than and running along the length of a bastion or ravelin, a ditch lying between them.

Counter Irritants form a class of remedies used externally, which by setting up irritation relieve pain or congestion elsewhere in the system. Their effect is probably due to reflex action, caused by the impression they produce on the nerves of the skin. They are divided into three classes: (1) *Rubefacients*, which increase the heat and redness, e.g. hot water; (2) *Vesicants*, which produce blisters, e.g. cantharides; and (3) *Pustulants*, of which croton oil is an example. The use of the stronger C. I should only be under medical advice, as great harm can be done by careless or injudicious treatment.

Countermine, see under MINES; MILITARY.

Counterpoint, musical term which has been cleverly defined as the art of combining melodies. The name is found in use in the fourteenth century, when a system of notation by points was in vogue. A single melody was shown by a line of points, and C. was formed by the addition of one or more lines of points to the original, each line denoting a distinct melody, but so contrived that when the notes were produced at the same time, the whole formed a correct harmony. This is known as strict C., and the rules were closely followed for many years, although in later music the laws have been widely relaxed, perhaps with the result of reducing the rich effect acquired by rigid adherence to the rules. When the melodies are so written that their position can be altered without loss of harmony by the transposition of either below or above the other one, then the combination is known as double C. Triple, quadruple, and larger combinations of C. are also used, but are only possible at the octave, and in these cases the melodies are so arranged that any one of them may be used as a base to the remainder. Bach is generally considered to be the greatest exponent of the art of contrapuntal writing, while there are many text-books and writings on the subject, an outstanding work of the last century being that of Cherubini. See J. J. Fux, *Steps to Parnassus*, 1944.

Counterpoise (from the Lat. *contra*, against, and *pensum*, weight), settling of one weight against another of equivalent power on a balance, thus forming an equilibrium.

Counterscarp, military term to denote that side of a ditch in fortifications which confronts the attacking force, the inner side being known as the *escarp* or *scarp*.

Countersign, military term for a watchword or sign previously arranged to prevent unauthorised persons from passing a line of sentries.

Counter-tenor, name of the highest adult male voice, usually called alto. See 'VCL; CONTRALTO.

of Seine-ravalling Duty, term applied to it has prime importance duties imposed by Brie cheese protect home industries against

unfair foreign competition or the dumping of foreign products on an unprotected market. Examples of C. Ds. are the duties fixed by the Brit. Gov. under the Safeguarding of Industries Act.

Countervallation, or **Contravallation** (Lat. *contra*, against; *vallum*, a rampart), term used with reference to fortifications, and signifying a chain of forts constructed round a besieged place to prevent any sorties by the garrison. These redoubts, which are put up by the besieging army, may be disconnected or joined by means of a parapet. This term, however, has practically ceased to be used, as in modern warfare the practice is very little resorted to, on account of the adoption of different tactics.

Countess of Huntingdon's Connection, or **Huntingdonians**, sect of Calvinistic Methodists founded in 1748 by Selina, countess of Huntingdon (1707-91), widow of the ninth earl. Coming under the influence of John Wesley, she became a member of his religious society in Fetter Lane in 1739, but when he renounced Calvinism she supported George Whitefield, and made him her domestic chaplain in 1748. Whitefield's personality and preaching attracted many notable people to her house in Park Lane, including Lord Chesterfield, Bollingbroke, and Horace Walpole. Later the countess built chapels in Brighton (1761), Bath (1765), Tunbridge Wells (1769), Worcester (1773), Spa Fields, London (1779), and many other places, while in 1768 she instituted Trevecca College, near Talgarth, Breconshire, for the theological training of her chaplains. She succeeded from the Church of England in 1783 when the bishops refused to ordain her protégés, thus becoming a dissenter; and in 1790 she evolved a scheme for the perpetuation of the connection after her death. In 1792 the lease of Trevecca House expired and Cheshunt College in Hertfordshire was opened, but was transferred to Cambridge in 1906. Spa Fields chapel was transferred to Golders Green in 1910. See the ann. reports of the Countess of Huntingdon's Connection.

Count Out, Forty members must be present either in a debate in the House of Commons or in a committee of the whole House, and it is the duty of the Speaker or Chairman (as the case may be) if he is not satisfied that there is a quorum of forty members to give the order for withdrawal of strangers and for the summons of members from the precincts of the House. Two minutes only are allowed for additional members to assemble, when if, after twice counting those present, it is found there are under forty, the House adjourns.

Country-dance, originally a dance practised by country people in the open air. The generic name for all Eng. dances of a rural or native origin. They were introduced into France (1715-23) under the erroneous name *contre-dances*, and passed on to Italy and Spain. The word is especially applied to dances with two long lines of an indefinite number of couples facing each other. The dancers

are continually changing their places, as in the 'Swedish' and 'Sir Roger de Coverley.' In recent years there has been in Great Britain a revival of interest in these dances, under the leadership of Mr. Cecil Sharp (*q.v.*), and this movement is now directed by a society. See Steele, *Spectator*, 2 (1711).

'Countryman, The,' quarterly jour. pub. in London, created in 1927 under the editorship of J. W. Robertson Scott (*b.* 1866) of Burford, Oxfordshire. Its price of 2s. 6d. and its pocket size were innovations at the time of its first pub., but its circulation rose to 60,000. It covers every aspect of rural life.

County (derived from the Lat. *comitatus*, through the Fr. *comté*). C. or shire is a term used to designate a specific area of a kingdom for administrative purposes. In the United Kingdom the boundaries of the Cs. in some cases confine dists. which were formerly old kingdoms, notably Kent, Surrey, and Sussex, while other Cs. have been formed by Acts of Parliament. The Cs. are themselves combinations of hundreds, and have their own officers for the administration of certain local matters and an elective C. council. In the U.S.A. Cs. are divs. of the states made by the state legislature primarily for purposes of law, their powers differing widely in each state.

County Council created by the Local Government Act, 1888, as the unit of local government for the management of the administrative and financial business of a co. or div. of a co. Before the Act the vast increase in the activities of the state in matters of local government found expression in the periodical creation of numerous local boards acting independently of each other, and in the gradual extension in all directions of the administrative duties of justices of the peace in quarter sessions. The consequent overlapping of local governmental areas, nearly every public authority dividing the country differently and with no reference to other divs., led to a lack of coherent principle in the performance of these delegated state duties. The Act of 1888, by creating a body, in area and personnel truly representative of cos., effected a considerable measure of uniformity in the world of local government. The word county, or administrative county, as used in the Act is not synonymous with county in the ordinary sense. By adopting the existing tn. councils in the municipal bors. (see also BOROUGH) as co-ordinate bodies with the C. Cs., the term C. C. includes a number of tns. with a pop. of over 50,000 each in the category of administrative cos.; but under the Local Government Act, 1933, a bor. council may not promote a Bill to constitute the bor. a co. bor. unless the pop. is 75,000 or upwards. (The first Schedule to the Consolidating Act, 1933, gives forty-nine administrative cos. for England (excluding London) and twelve for Wales; and eighty co. bors. in England and five in Wales.) Means were provided for creating increasing tns. administrative cos. as occasion requires. Further, some cos. possess more than one

C. C., e.g. Yorkshire is divided into three administrative cos., the N., E., and W. Ridings, the W. Riding comprising so much of the wapentake of the co. of York as is not included in York bor. Lincoln is divided into three administrative cos., and Suffolk and Sussex into two each; while the administrative co. of London, under the London C. O., comprises the metropolitan portions of Middlesex, Kent, and Surrey. The C. C. consists of a chairman, alderman, and councillors without restriction as to sex. The chairman is elected annually by the C. C. from among the co. aldermen and councillors, or persons qualified to be aldermen or councillors; and unless he resigns or ceases to be qualified he continues in office until his successor becomes entitled to act as chairman. During his term of office the chairman continues to be a member of the C. C., notwithstanding the provisions of the Act of 1933 as to the retirement of co. councillors at the end of three years. Aldermen are elected by the C. C. from co. councillors or persons qualified to be co. councillors; the number of aldermen is one-third of the whole number of co. councillors, and in every third year, being the year in which co. councillors are elected, one-half of the number of senior aldermen must retire. Co. councillors are elected for three years, and they must retire together in every third year on March 8. Clerks in holy orders and peers owning property in the co. may serve as aldermen or councillors, and, generally, the qualification for councillors is the same as for bor. councillors. Persons of either sex registered as co. electors, or enrolled burgesses of any non-co. bor., are qualified as co. electors, the qualifications for the franchise being the same for men and women (Representation of the People Act, 1928).

The constitution of the London C. C. differs somewhat from that of other C. Cs. Each parl. div. in London co. elects two members to the council with the exception of the City, which elects four, making a total of 124 councillors. The twenty aldermen are elected as in the case of other councillors. The functions of the C. C. comprise a great variety of duties original and supervisory, and the Ministry of Health may transfer to it any such statutory powers, duties, and liabilities of the Privy Council, or any gov. dept. as appear to relate to matters of an administrative character arising within the co. The co. police are under the joint control of sub-committees appointed by the C. C. and the justices of quarter sessions. The C. C. since the Education Act, 1902, is the educational authority of the dist. except within the limits of urb. dists. of over 20,000 inhab., and of bors. of over 10,000 inhab. For educational purposes a C. C. may raise, or aid a dist. council in raising, any sum of money necessary up to a penny in the pound on the local rate. A C. C. has the same power of making by-laws as a bor. It is also the highway authority for all co. roads (see HIGHWAYS and below) and may make contributions towards the cost of maintaining and

improving any highway or public footpath although not a co. road; and it has special duties as to the repairs of co. bridges. It has certain duties appertaining to public health, administering the Acts relating to noxious insects and pests, preventing abuses in the sale of bread and coal, and the spread of contagious diseases amongst animals (see CONTAGIOUS DISEASES (ANIMALS) ACTS), and the pollution of rivers. Under the Housing Acts, it may assume the powers of a defaulting rural dist. council in the duty of providing housing accommodation for the working classes, and is charged with the duty of electing a co. medical officer of health. It may prepare draft schemes for small holdings and lend money to tenants purchasing small holdings. It sanctions the compulsory purchase of land for allotments to the working classes (statutory provisions on the powers of C. Cs. to acquire and deal in land are to be found in the Local Government Act, 1933, part viii.). It grants music, dancing, and race-course licences. It appoints the coroner (*q.v.*), for the shire, the co. surveyor, and the public analyst. It may fix the boundaries of dist. and par. councils and make orders for grouping par. into one administrative unit. Over smaller local governing bodies it exercises under various Acts large supervisory powers, and generally it is responsible for the proper working of the Local Government Acts within its boundaries. Its powers in relation to finance are considerable. It levies the co. rate. It does much of the work once exclusively performed by Quarter Sessions. It sanctions loans by par. councils, and itself has large borrowing powers on the security of its ann. revenue, subject to the control of the Ministry of Health: chiefly for the execution of permanent works. The revenue of the C. C. apart from the co. rate is derived chiefly from royalties, fines, tolls, and rents, together with State subventions of a share of the moneys arising from estate duties and certain co. licences, mainly those for the sale of intoxicating liquors. Very extensive powers have been vested in the London C. C., and others have been added. With the necessary modifications the Local Government Act of 1888 was extended to Scotland and Ireland. The Act of 1894 applies only to England and Wales.

There has been a distinct trend in modern legislation to use more and more the machinery of the C. Cs. for the administration of local government. We have seen above that the Education Act of 1902 transferred to them work of the highest importance from a national point of view, and, as a result, there has been a perceptible levelling up in the standard of elementary education throughout the country. More work was given to them by the Local Government Act of 1929, which abolished Boards of Guardians and transferred the functions of the poor law authorities as from April 1, 1930, to the council of the co. or co. bor. comprising the poor law area for which the poor law authority had previously acted. To-day, however, local authorities are no longer

responsible for the relief of destitution, a National Assistance Board having been set up to administer a state scheme. In view of the remarkable development in road transport in the last two decades, the administration and maintenance of roads became a matter of vital importance, and the same Act made certain provisions with regard to them which affected C. Cs. As from April 1, 1930, the following are co. roads: (1) main roads; (2) roads constructed by a C. C. with the aid of an advance by the Road Board (no longer existing) or Ministry of Transport; (3) roads declared by a C. C. to be main roads; (4) roads constructed under Development, etc., Roads, etc., Act, 1909; (5) highways in rural dists. which before April 1, 1930, were controlled by rural dist. councils; (6) classified roads which were or are vested in urb. dist. councils; (7) any ordinary road which a C. C. on application of an urb. dist. council declares to be a co. road or which the Ministry of Transport so declares on appeal by an urb. dist. council. Co. roads, however, may cease to be such by an order of the Ministry of Transport on application of the C. C. An urb. dist. council may claim to maintain a co. road within its area but the C. C. must pay for the work. The following lists are a broad attempt to show the present distribution of functions to C. Cs., co. bor. councils, and the London C. C. The lists are, however, liable to much local variation. C. Cs. registration of births, deaths, and marriages; various by-laws; adoption and boarding out, etc., of children; education (including school medical service and meals); registration of electors; licensing of entertainments (theatres, cinemas, race-courses); analysis of fertilisers and feeding stuffs; inspection, analysis, etc., of food and drugs; housing (assistance in rural areas); land charges registration; libraries and museums; motor vehicles and drivers' licensing; nursing homes registration; parks and open spaces; petroleum storage and stations; police (through a joint standing committee of the C. C. and the co. justices); remand homes; prevention of pollution of rivers; maintenance of roads and bridges; inspection of shops; inspection of weights and measures; and protection of wild birds. The functions of co. bor. councils include all the above and, in addition, the following: provision of allotments; baths, swimming baths, and wash-houses; control of building; cemeteries; control of common lodging houses; electricity meter testing; notification and disinfection of infectious diseases; mortuaries; suppression of nuisances; sanitary services—drains, refuse disposal; sewerage; smoke abatement; and vaccination. The functions of the London C. C. include most of those of the C. C. generally, excepting registration of births, deaths, and marriages; registration of electors; analysis of fertilisers and feeding stuffs; food and drug inspection; libraries and museums; police; and wild birds protection. But the London C. C. has the following additional functions: control of building; slum clearance; road construc-

tion, as well as maintenance; and prevention of Thames floods.

In Canada. In Ontario, Quebec, and New Brunswick, where rural local government areas are known as cos., the C. C. is made up of the elected reeves and deputy reeves of the townships and vils. In some cos. the smaller tns. are also part of the co., and in that case the mayor of the tn. is also a member of the C. C. These Canadian C. Cs., whose presiding officer is chosen by the council and is called warden, control all matters of general interest to the whole co., such as health, education, welfare, and roads.

County Courts are local civil courts established throughout England by an Act passed in 1846 for the purpose of recovering small debts and demands; but all the modern provisions as to C. Cs. are to be found in the Act of 1924, and in the Consolidatory Act passed in 1934. Originally the jurisdiction was limited to claims where the amount involved did not exceed £20, but by the combined operation of a series of Acts of Parliament the jurisdiction has increased to such an extent that they have absorbed a large amount of the business that would ordinarily have occupied the attention of the *nisi prius* courts of assize. Historically a co. court is an ant. institution the evolution of which is to be traced from the judicial side of the shire-moot and the old court of requests or 'loser Court of Equity for the hearing of poor men's suits.' The direct progenitor of the co. court is, however, to be sought in the later court of requests and other small local civil tribunals, which took over much of the jurisdiction of the shire-moot. Subsequently the civil jurisdiction of the old co. court to all intents and purposes ceased when a few years later the circuit judges of the Curia Regis were granted commissions of *nisi prius*. From that time the ant. co. court became merged in the courts of requests down to 1846, when the latter, together with most other minor local civil courts, were abolished, and a new kind of co. court for the prosecution of small claims set up. By the Act of 1846 the country was divided into co. court dists. There are now fifty-nine such circuits, excluding London, with one judge for each circuit. By a later Act the lord chancellor is empowered to appoint two judges for any circuit provided the total number does not exceed sixty. The salary of a co. court judge, originally £1200 a year, is now generally £2000 a year. He must be a barrister of seven years' standing and not over sixty years of age. A co. court judge may neither practise at the Bar nor sit in Parliament. Actions in co. court are tried by a judge alone, unless one of the parties demands a jury. A co. court jury consisted formerly of five men, but the number is now eight. The overwhelming majority of cases are tried without a jury. In equity suits, and in actions in which the amount claimed does not exceed £5, trial is without a jury; in actions for libel, slander, malicious prosecution, seduction, breach of promise,

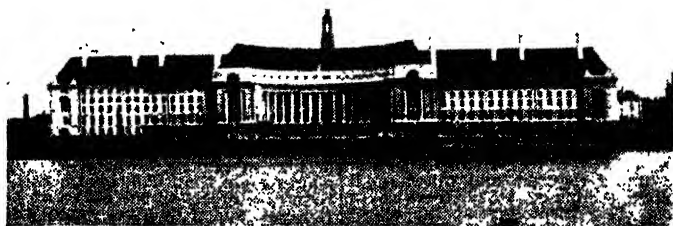
either party may demand a jury; any other action shall, if either party so requires, be tried with a jury unless the judge is satisfied, on application by the other party, that the action is more fit to be tried without a jury. A characteristic feature of co. court procedure is the absence of *pleadings* defining the questions at issue. Various amending Acts have gradually enlarged the jurisdiction of the C. C. with the result that they now have unlimited jurisdiction in all common law actions where the parties consent in writing to the action being tried there; and, further, jurisdiction (1) in all actions arising out of contract or tort (i.e. actionable wrong) where the debt demanded or damage claimed does not exceed £100. (2) In equity suits where the amount or value of the matter in dispute does not exceed £500. (3) In actions of ejectment and the actions concerning title to land where the ann. value or rent of the land does not exceed £100. (4) In probate and admiralty actions limited to £200 personally and £300 respectively. (5) In remitted actions from the high court. Actions may be remitted from the high court to the co. court by agreement between the parties, or on the application of one party provided the subject-matter and amount are within the co. court jurisdiction, and if the high court thinks fit; and there is also provision for remission of actions of tort where the plaintiff is impecunious. On the other hand the defendant to a co. court action may in any action on contract where the plaintiff claims more than £20, or, on tort, more than £10, object to the co. court hearing the case, and if he gives security for the sum in issue and costs up to £150 the co. court judge will transfer the action to the high court, provided he is satisfied that an important question of law or fact is involved. It is to be noted that a plaintiff who sues in the high court where he might in the first instance have sued in the co. court will lose his case if, in an action on contract, he recovers less than £40, and, in an action on tort, less than £10; and if he recovers less than £100 or £50 respectively, he will only get costs on the co. court scale—unless the high court thinks that there was sufficient reason for his proceeding in the high court or the defendant objected to transfer. The procedure in beginning an action is simple. The party wishing to proceed to law fills in a 'precipe,' which may be obtained gratis at the co. court office. This precipe is a slip of paper on which plaintiff writes particulars of the action, the remedy or damages claimed, and the name and address of his solicitor (if any). An affidavit of the plaintiff showing the ground of the application must also be filed. A fee is payable on entry of the plaint, and if the claim exceeds £2, ordinary summonses must be served by the bailiff, for which an additional fee is chargeable. On the issue of a summons a plaint note is given to the plaintiff. This is an acknowledgment of the fee paid, and gives the date when the summons is returnable. The summons is under the

seal of the court and is served by a bailiff of the court.

County Hall, Westminster, is the headquarters of the London Co. Council. It is situated on a site of 6½ ac., part of which was reclaimed from the riv. foreshore, running northwards along the E. bank of the Thames from Westminster Bridge. The foundations for the building designed by Ralph Knott were laid in 1913, but the work was delayed by the war, and the C. H. was not formally opened until 1922. The style is a free treatment of Eng. Renaissance, and the total cost was approximately £3,533,000. The actual façade is faced with Portland stone, and the roof covering is of red tiles.

weeks immediately before and after the four quarter days. Quarter sessions in hors. are fixed by the bor. recorder. The court is constituted by two or more justices of the peace presided over by a chairman. Generally speaking, the criminal jurisdiction of the C. S. is restricted to minor felonies and misdemeanours, the more serious crimes being tried at assizes. They are forbidden to try treason, murder, or any capital felony or any felony punishable by penal servitude for life. They also exercise jurisdiction in rating appeals and the licensing of places for the sale of intoxicants.

Coup. A *coup d'état* is an arbitrary stroke of policy, carried out suddenly



COUNTY HALL, WESTMINSTER, LONDON

L.C.C.

There are nine floors, each containing about 100 rooms. The council of 144 members meets in the octagonal council chamber facing on to the Thames and the members' terrace. The council determines the principles, but delegates administration to standing committees which meet once a week or once a fortnight. All the work of the London Co. Council is discussed and organised, and most of the detail planned and administered within the C. H., which, in addition to accommodating the council and the twenty committees, houses a staff of 3000 people.

County Rates are taxes levied by co. councils (*q.v.*), in connection with local government expenditure to meet deficiencies not provided for out of revenue or local taxation grants. Some purposes for which a co. rate may be levied are the cost of the assizes and co. sessions, half the cost of the co. police, and expenses under the Education Act, 1902.

County Sessions, the general or quarter sessions of the peace for the co. sit to try such crimes as statute law expressly permits them to try and hear appeals against summary convictions where a right of appeal is given by statute to the person convicted. Quarter sessions in cos. must be held within a period of three

both violently and illegally by the ruling power, with entire disregard of the prerogatives of other parts of the body politic. The two most famous instances are Napoleon Bonaparte's C. of 1799, ending the directory by his 'whiff of grapeshot,' and that of Louis Napoleon, which broke up the national assembly by force, 1851. A *coup de main* is a sudden and successful attack, made to capture a position instantaneously. A *coup d'œil* (glance) means a rapid, comprehensive view of a complicated matter, often used of the faculty of taking a general survey of a military position and estimating its advantages and disadvantages. *Coup de grâce* is the merciful final blow which puts a victim out of pain, hence a decisive or finishing stroke. A *coup de théâtre* is a trick of the stage, or any sudden sensational act.

Coupar-Angus, par. and tn. of Perthshire, Scotland, near R. Isla, 12 m. from Perth, 15 m. from Dundee. There are remains of a Rom. camp, and also of the Cistercian Abbey, founded 1164 by Malcolm IV. Manufs. coarse linen, fabrics, jute, and leather. There are steam saw-mills and agric. implement works. Pop. 2000.

Couped (Coupé), term in heraldry used

to describe the head or any limb of an animal, or a part of a plant, represented as cut off clean and smoothly in a straight line. Where the representation is jagged and uneven, as if forcibly torn off, it is blazoned 'crased,' or 'slipped,' Coupé (from Fr. *couper*, to cut) is also applied to an ordinary with extremities cut off so as not to reach the shield's boundaries.

Couperin, François (1668-1733). Fr. musician, son of Charles C. (1638-79). The greatest member of a large musical family. Learnt music from his father and from Jacques-Denis Thomelin, organist of the king's chapel. Appointed organist at the church of Saint-Gervais in 1685, where he remained until his death. In 1693 he succeeded Thomelin as organist to the king, and in 1717 received the title of Ordinaire de la Musique de la chambre du Roi. He had been connected with the court before and taught the royal children. In wider circles, too, he was famous as harpsichord teacher and had down his system in the treatise *L'Art de toucher le clavier* (1716). He married Marie-Anne Ansalet c. 1689, and they had two daughters, the second of whom, Marguerite Antoinette, became a distinguished harpsichordist. Works include four books of harpsichord pieces (c. 230); forty-two organ pieces; four *Concerts royaux* for harpsichord, strings, and wind instruments; ten chamber concertos. *Les Gouls-réunis*; four suites for strings and harpsichord. *Les Nations*; chamber sonata *Le Parnasse, ou l'Apothéose de Corelli* and *L'Apothéose . . . de Lully*; two suites of pieces for viols with figured bass; some miscellaneous chamber works; twelve songs for one, two or three voices; church music includes *Laudate pueri Dominum*, *Leçons de Ténèbres*, a number of motets, etc. See life by A. Tessler, 1926, and H. Quittard, *Les Couperins*, 1913.

Couperus, Louis-Marie-Anne (1863-1923), Dutch poet and novelist, b. at The Hague, but spent his boyhood years in the Dutch E. Indies. His first works were two collections of poems, *Een Lent von Vaersen* (Springtide of Verse) (1884) and *Orchideen* (1886). His first novel, *Eline Vere* (1888), a vivid picture of society at the Dutch cap., won him fame. He united in his writings the ideas and tendencies of both Fr. and Scandinavian literature. Other works are *Noodlot* (1890); *Extase* (1891); *Illusie*; *Majesteit* (1893); *Wereldvrede* (1894); *Metamorfose* (1897); *Langs Lijnen van Geleidelijkheid* (1899); *De Stille Kracht* (1901); *Oberlichtende Dremfels* (1903); *Dionysus* (1904). C. also wrote the fairy-tales *Psyche* (1897) and *Fidessa* (1899). His translator, A. Texeira de Mattos, made a great success with the Eng. version of *Van Ouden Menschen, de dingen, de bijgaan* (1906)—viz. *Old People, and the Things that Pass* (1919). He d. at De Steeg of blood-poisoning.

Couple, in statics, consists of two equal forces acting in opposite directions along two parallel straight lines. It is impossible for a C. to keep a body in equilibrium, for any C. tends to rotate the body. The distance between the lines of action

of the two forces is known as the arm of the C., and the moment is the product of one of the forces into the arm.

Couplet (from Lat. *copula*, a bond), any two lines of poetry rhyming together. They are usually of the same length and contain the complete expression of an idea. The poetic writers of Queen Anne's time made frequent use of the C. in aphoristic versification. Long poems in this rhythm necessarily become monotonous. Pope and Dryden used the heroic C. (rhymed iambic pentameters) frequently.

Coupon, document attached to a share warrant, bond, or other negotiable instrument, indicating the dates on which dividends or other periodical payments will become payable. Share warrants are a device for legalising the issue of fully paid shares payable to bearer, and when issued the name of the shareholder is struck off the register, because as henceforth the holder is the person who happens to hold the warrant; the company neither knows who he may be nor who is entitled to the dividends. Hence the necessity for attaching Cs. dated with the successive dates on which dividends will be paid, during sev. years following the issue of the warrant; to the person producing them. The Cs. attached to bonds issued for any term of years represent the total number of periodical payments for interest, whether quarterly, half-yearly, or yearly, as will become payable, the date of such payments being printed on each C. On the date of any one payment maturing, the holder of the bond merely detaches the C. and presents it for payment at a specified bank.

'Coupon' Election, general election of Dec. 1918, which returned the Coalition Gov. of Lloyd George. After the armistice Lloyd George and his Cabinet resolved on an immediate election in order that he might go to the peace conference with the authority of a new Parliament behind him. The gov. fought the election as a coalition and both Liberal and Conservative supporters of the coalition received a letter of support from Lloyd George and Bonar Law, leader of the Conservatives. The Asquithian Liberals were refused such a letter, as also were candidates of the Labour party, other than a few who remained with the gov. This letter from the leaders of the gov. was nicknamed a C., and so the election has become known as the C. E., the nickname being used as a term of abuse by reason of the fact that the decision to dissolve Parliament at that date and in those circumstances has been so severely criticised by many historians.

Courante, or **Coranto**, fr. dance which was popular in the seventeenth century. The term is also used in music for a movement with a distinct rhythm generally forming part of a suite and coming immediately after the Allemande.

Courbet, Gustave (1819-77). Fr. painter, chief of the realists, b. at Ornans, near Besançon. He left the study of theology for art, became a pupil of Steuben, d'Angers, and Hesse in Paris, but was

largely self-taught. C. was much influenced by Flemish and Venetian masters. He was a member of the com., 1871, and in 1875 was condemned to pay the costs of re-erecting the Vendôme column, which he had caused to be pulled down. Among his portraits and figure-paintings are 'Homme à la Pipe' (1844); 'Casseurs de Pierres' (1850); 'l'Enterrement à Ornans' (1850) (now in the Louvre); 'Fair Dutchwoman' (1853); 'Démolisses de la Seine' (1857); 'Man with a Leather Belt' (1870). C. is at his best with landscapes of his native Franche-Comté such as 'Combat de cerfs' (1861); 'Remise de chevreuils' (1866). 'The Wave' (1870) is now in the Luxembourg. See W. C. Brownell, *French Art*, 1902, and lives by H. d'Iderville, 1878; L. L. Bénédite, 1911; C. Léger, 1929; P. Courthion, 1931.

Courbevois, suburb of Paris, in the arron. of St. Denis, on the l. b. of the Seine. It is an industrial dist. given over to bleaching greens, textiles, and chemical works. Pop. 54,100.

Courcelles, com. in the prov. of Hainaut in Belgium, about 5 m. N.W. of Charleroi, with coal, iron, and glass industries. Pop. 18,000.

Courier (or **Courier de Méré**), Paul Louis (1772-1825), eminent Fr. writer, b. in Paris, son of a wealthy bourgeois and educated at the Collège de France and at a military academy, devoting himself at both institutions to Gk. literature. He started as a pure writer of belles-lettres but by force of circumstances and the chicanery of politics he became a journalist and the leading Fr. pamphleteer, noted for his irony. For a time he lived in Florence, where the accidental blotting of a page in a MS. of Longus led to the *Lettre à M. Renouard* (1810), which first showed his literary powers. In *Pétition aux deux Chambres* (1810) he described the grievances of the peasantry; in *Lettre à Messieurs de l'Académie des Inscriptions* (1819), the most brilliant of all his writings, he flayed that learned body for having preferred to him in their last election a man whose only advantage was noble birth. His best known writing, however, was his *Simple discours*, one of a series of pamphlets addressed to his 'fellow villagers' and signed 'Paul Louis Vigneron', in which he satirised the proposal to purchase Chambord for the duc de Bordeaux. For this he was fined and imprisoned for two months. He was shot on his small estate in Touraine by a farm hand whom he had dismissed from his service. As an author and satirical writer he was brilliant, rich in contemporary historical knowledge and classical quotations. The whole of his works were collected by Armand Carrel and pub. in 4 vols. in 1830.

Courier (derived from the Fr. *courir*, to run), term applied to servants whose duty is to relieve their employer of trouble when travelling by making all the necessary arrangements for transport, hotel accommodation, securing passports, etc. Prior to the formation of the post office, messengers were employed to deliver letters and messages and were

known as *Cs*. Important dispatches to foreign embassies are still frequently delivered by the king's messenger or Foreign Office *Cs*.

Courlan, Caran, Crying Bird, and Crazy Widow, popular names of the wading-bird *Aramus scolopaceus*, which is found in S. America. The bird is noted for its peculiarly dismal cry.

Courland, see KURLAND.

Cournot, Antoine Augustin (1801-77). Fr. mathematician, philosopher, and economist, b. at Gray. He is chiefly noted for work on the calculation of probabilities, and his foundation of the so-called mathematical school of social economy. He wrote *Recherches sur les principes mathématiques de la théorie des richesses* (1838); *Exposition de la théorie des chances et des probabilités* (1843), and *Principes de la théorie des richesses* (1863).

Cours, com. of France, in the dept. of Rhône, on the Trambouze, where cotton goods, called Beaujolais, are manufactured. Pop. 5900.

Coursing, pursuit of hares by greyhounds, not by scent, but by sight. In ant. times other game also was coursed, generally deer: the sport is described by Arrian about A.D. 150, also by other classic authors (see W. Dansey, *Arrian on Coursing*, 1831). Our own ancestors probably practised it as much to fill the larder as for sport. In Saxon and Norman times only nobles and landowners had the privilege of keeping greyhounds, but in the reign of Elizabeth rules for the sport of C. were drawn up by the duke of Norfolk, and during the next century open competitions came into vogue. Still no regular 'club' was formed until 1776, when Lord Orford founded one at Swaffham, Norfolk, and soon afterwards the Ashdown Park club was formed, holding its meetings at Lambourn, Berkshire. The sport spread widely, some of the finest courses being on the downs at Amesbury, Stockbridge, etc. After the passing of the Game Laws in 1831, C., which had hitherto been almost restricted to clubs, was more generally taken up, and in 1880 the passing of the Ground Game Act, greatly altering the conditions of the sport, led to the estab. of many enclosed courses. These were much favoured by betting men, as the whole run could be watched from a stand, but it was found that the system encouraged breeding entirely for speed, training for other qualities being neglected, and with keen sportsmen open courses are now most in favour. The season lasts from about Sept. to March, the Altcar or Waterloo meeting, which decides the championship, coming in Feb. The Waterloo Cup, the courser's Derby, is so called from having been originated in 1836 by the proprietor of the Waterloo Hotel, Liverpool, who gave the cup and was lucky enough to nominate the first winner, Lord Molyneux's Milanio. In 1882 the *Greyhound Stud Book* was estab., and no dog not appearing there with properly traced pedigree can compete at any meeting under the rules of the National Coursing Club, a representative

association formed in 1858, which governs C. all over the kingdom. Courses vary a good deal in their character; some particularly favour speed, e.g. Kempton Park, Surrey, where at the Jan. meeting the very fastest dogs are to be seen. But though speed is highly important, cleverness tells greatly in the estimation of points, and it is in the breeding and training for all requisite qualities that judgment, skill, and luck are required. A competition is held thus: the slip-steward seeing that each slipper in turn is ready, punctually, with his brace of hounds in leash, a hare is started (at an open meeting by beaters), and when it has about 60 yds. start, the hounds are simultaneously released, and the judge follows the run on horseback. He decides the points as follows: on *speed*; the *go-by*, when a greyhound starts a clear length behind, and in a straight run gains a clear length's lead; the *turn*, bringing the hare round at a right angle or more; the *wrench*, turning it at less than a right angle; the *trip*, throwing it over, but failing to kill; the *kill*. The judge may declare a 'no course' if the trial is not satisfactory, or a tie if points are equal. His decision is signalled by the flag-steward. The victory goes not necessarily to the greyhound that kills, but to the one that does most to make the kill possible. Some experienced dogs are artful, and manage to get the kill themselves after leaving all the work to the others; this tendency has often been proved hereditary. C. in the Eng. style has been taken up in Australia and the U.S.A.; in the latter the prairie jack-rabbit often takes the place of the hare.

Courtauld, Samuel (1876-1947), Brit. industrialist and art patron, second son of Sydney C., of Huguenot descent, of Braintree, Essex; educated at Rugby School. He entered the family business of silk manufacturers, and soon became manager of the Halsestead mill, and, by 1908, was general manager of all the company's textile factories under H. S. Tetley, who had played a leading part in the development of rayon in England—a branch of textiles in which C.'s were pioneers. Samuel C. was early trained in the chemical side of the rayon industry in Krefeld, Germany. In 1915 he was appointed to the board of the company and, in 1917, joint managing director with Henry Johnson; and finally, in 1921, he became chairman, thus succeeding to the leadership of the business founded ninety-six years previously by his great uncle, Samuel C., and by his grandfather. There have been in Brit. industry few parallels to the way in which C.'s came to dominate a new field and for a long time to hold the lead in research and production of artificial silk; and for all this C. was largely responsible during his twenty-five years as chairman. He spent his great fortune munificently. Not only did he form a collection of paintings of the Impressionist and post-Impressionist schools, chosen with conspicuous taste, but his generosity enabled the Tate Gallery to acquire masterpieces

that would otherwise never have entered the public collection. In 1931 he founded and endowed the C. Institute of Art in the univ. of London, the first institute to be created in this country for the appreciation of art and the study of art hist.; and to house the institute he handed over his house in Portman Square, one of the finest examples in London of the work of Robert Adam, and with it the greater part of the collection of the Impressionist pictures which he had formed, the rest being bequeathed to the National Gallery. C. was also a trustee of the National Gallery.

Courtaulds Ltd., textile and artificial silk manufacturers, estab. in 1824 as Samuel Courtauld & Company. The production of artificial silk was begun in 1904, with headquarters at Coventry, and in 1910 factories were set up in the U.S.A., Germany, and Russia. The company was incorporated in its present form in 1913. Three years later it absorbed its only Eng. competitor, the Brit. Glanzstoff Manufacturing Company, and by 1922 controlled the whole of the Eng. artificial silk industry. It also acquired interests in the Brit. Cellophane Company, Morton Sundour Fabrics Company, and, jointly with Imperial Chemical Industries, all capital of Brit. Nylon Spinners. Spinning factories are estab. at Halsestead and Braintree in Essex, Halifax in Yorkshire, and Leigh in Lancashire. Other factories are at Flint, Coventry, Nuneaton, Wolverhampton, Bocking, Bradford, Droylsden, Greenfield Preston, Rochdale, and Trafford Park. In 1941 the Brit. Gov. acquired from the company about 95 per cent of its holding in Amer. Viscose Corporation (for the sake of the dollar exchange). The capital of the company, authorised and issued, is £32,000,000 (£24,000,000 ordinary and £8,000,000 preference stock).

Court Baron, necessary court of a baron. It is partly administrative and partly judicial. Other courts at the manors were the customary court and court leet.

Courtenay, name of a distinguished Eng. family, which was at one time widely distributed in the W. country. The founder is supposed to have been Athos, who fortified Courtenay in Gâtinais in the early eleventh century. Renaud, his descendant, was one of the magnates who fought in the Crusades under Louis le Jeune. With his daughter Elizabeth went the estate of C. to her husband Peter, son of the Fr. king, Louis the Fat. There were numerous lines of royal Cs., sprung from Peter of France. In England a house of C. has flourished since the reign of the first Angevin monarch, and its first known ancestor was Renaud. Sir Hugh de C. shared in the honours of Crécy and Calais, and was one of the knight founders of the order of the Garter. By his wife, a sister of the famous Talbot, earl of Shrewsbury. Another Hugh C. had issue Thomas, fifth earl of the C. line, whose wife was Margaret Beaufort, daughter of John, earl of Somerset. The earldom was extinguished by attainder after the wars

of the Roses, but on the restoration of Henry VI. John C. was restored to the earldom. Sir William C., a cousin of Henry C., who was beheaded for correspondence with Cardinal Pole, was head of a knightly line of Cs. whose seat was Powderham Castle. The title of Earl of Devon, sev. times forfeited and recovered, is still held by the Cs. *See also* succeeding article.

Courtenay (Courtney), William (c. 1342-96), Eng. prelate, fourth son of Hugh, earl of Devon, and Margaret Bohun. He studied at Oxford, becoming chancellor of Oxford Univ., 1367; bishop of Hereford, 1370; bishop of London, 1375. He vehemently opposed Wycliffe and the Lollards, and as Wycliffe's prosecutor (1377) was involved in a quarrel with the duke of Lancaster. C. became archbishop of Canterbury, 1381-98. In 1382 he summoned a council, which met in the Black Friars' monastery to pass judgment on Wycliffe's heretical teaching. Wycliffe was allowed to go free, but many of his followers were compelled to recant. C. was a staunch upholder of the Church's rights, and discouraged interference from either king or pope, though ready to submit to their decrees in all other matters. *See* vol. iv. of W. F. Hook's *Lives of the Archbishops of Canterbury*, 1860-76.

Courtenes, Franz (b. 1853), Flemish *genre* and landscape painter. His pictures of autumnal woods and desolate snow-covered stretches are particularly fine. Examples of his work are 'Golden Rain, Coros' (Brussels Gallery); 'After a Day of Snow'; 'Morning in the Campino' (1881); 'Auszug der Herde'; 'Ein frischer Morgen'; 'Die Wolfe des Meeres.'

Courtières, Gabrielle Anne de Cisternes de, see DART, COMTESSE DE.

Courtesy Titles, titles granted by general consent and custom to certain individuals, especially the near relations of peers, to which the holders have no actual legal right. Such titles are common in countries such as Great Britain which have various different orders of nobility. A peer may have as many as sixteen inferior titles (like the duke of Atholl), and while known himself by his highest title or titles, his eldest son bears one of the inferior titles by courtesy (C. T. are borne by the eldest sons of dukes, marquesses, earls, viscounts, and barons). The courtesy title need not be the next highest, and may differ in different generations. It does not affect the legal status of the holder, who, as a commoner, is still eligible for the House of Commons. Younger sons of dukes and marquesses take the title lord, while the daughters assume that of lady, still retaining it if they marry men of lower rank. The title honourable is applied to the children of earls, viscounts, and barons. In Scotland a viscount's or baron's eldest son is styled master. Similarly the judges of the court of session in Scotland are called lord, though they may not sign themselves thus.

Court for Crown Cases Reserved, see CROWN CASES RESERVED.

Court-hand, name for the O.E. style of

handwriting, a modification of the Norman (as distinguished from the modern or It.), which was used in the Eng. law-courts from the sixteenth century till abolished by George II. in the early eighteenth century.

Courthope, William John (1842-1917), Eng. literary historian, prof. of poetry at New College, Oxford, 1895-1901. Among his works are *The Three Hundredth Anniversary of Shakespeare's Birth* (1864); *The Genius of Spenser* (1868); *Ludibria Lunnæ* (1869); *The Paradise of Birds* (1870); *Addison* (in Eng. Men of Letters series) (1884); *History of English Poetry* (1895-1909). He ed. Pope's works (10 vols.), with a biography, 1871-89. C. was for a time joint editor of the *National Review*.

Court Leet, old court of record that originally had an almost plenary jurisdiction in the trial of crimes. Any lord of a manor with a right of 'sac and soc' (the right to hold a court for one's tenants and the right to the amercements or fines respectively) was entitled to hold a C. L. Their decline followed on the passing of the statute of Marlborough, 1267, but Cs. L. are still occasionally held once a year before the stewards of certain lordships or manors.

Courtney, William Leonard (1850-1928), Eng. journalist and author, b. at Poona, India; educated at Somersetshire College, Bath, and at Oxford. He became headmaster of Somersetshire College (1873), fellow of New College, Oxford (1876), and was for many years treasurer of Oxford Univ. boat club. He came to London (1890), joining the *Daily Telegraph* staff. He ed. *Murray's Magazine* (1894), and succeeded Harris as editor of the *Fortnightly Review*. Among his works are *The Metaphysics of John Stuart Mill* (1879); *Studies in Philosophy* (1882); *Constructive Ethics* (1886); *Studies New and Old* (1888); *Studies at Leisure* (1892); *The Idea of Tragedy* (1900); *The Development of Martenlinck* (1904); *The Feminine Note in Fiction* (1904); *The Literary Man's Bible* (1907); and *Rosemary's Letter Book* (1909). His drama, *Kil Marlowe*, was produced at St. James's Theatre in 1893. *Undine*, a dramatised version of De la Motte Fouquet's tale (1813), appeared in 1902.

Courtney of Penwith, Leonard Henry, first Baron (1832-1918), Eng. statesman, b. at Penzance. A pronounced Liberal in politics, C. was under-secretary of state for the Home Dept., 1880-81, for the Colonies, 1881-82. He succeeded Cavendish as financial secretary to the treasury, resigning office in 1884. He was chairman of committees and Deputy Speaker 1886-1892. He opposed his party on the Transvaal war question, and retired from the House of Commons in 1900. He was ennobled in 1906. He stood alone in the House of Lords as an opponent of the prosecution of the war against Germany. He was an early advocate of proportional representation. Among his works are *The Working Constitution of the United Kingdom and its Outgrowths* (1901). D. at Cheyne Walk, Chelsea.

Court of Appeal, *see* APPEAL.

Court of Arches, *see* ARCHES.

Court of Record, *see* RECORD.

Court of Session, supreme civil tribunal of Scotland. In its present form it was estab. in 1532 by the Act of Institution of the C. of S., as a development of previously existing tribunals which were generally independent committees of the Scottish Parliament. Originally composed of the lord chancellor and fourteen members or senators, the C. of S. now consists of thirteen judges, all laymen. It has an Outer House in which sit eight lords ordinary of co-ordinate jurisdiction, and an Inner House divided into a first and a second div., each div. consisting of four judges of co-ordinate jurisdiction. The president of the first div. is the lord president; of the second, the lord justice-clerk. The two divs. of the Inner House are mainly appeal courts, but they have an original jurisdiction in certain actions relating to div. of common lands (commonalty), sale of bankrupt estates, curatory of the insane, and sale generally. At the hearing of an appeal from a jury case, which comes before the div. upon a Bill of Exceptions or motion for a new trial, the judge who presided at the trial sits along with the div. Original actions in the Outer House are heard in the first instance before any one of the five lords ordinary selected by the pursuer (plaintiff), but certain causes are specifically appropriated to particular judges, e.g. the second junior lord ordinary has exclusive jurisdiction in appeals from sheriffs in causes respecting church buildings. Appeals against valuations of lands and heritages, registration appeals, and election petitions are heard by specially constituted Cs. of S. The C. of S. exercises no criminal jurisdiction as such, but gives a civil remedy in cases of perjury, fraudulent bankruptcy, forfeitures, and breach of arrestment, etc. The C. of S. has exclusive jurisdiction in exchequer, maritime, and tithes (tithe) causes, and has superseded the consistorial and commissary courts in actions of status such as declarators (*q.v.*) of marriage, or separation, and the C. of S. alone may try questions of heritable right, unless the ann. value of the subject-matter does not exceed £50, or the total value does not exceed £1000. The C. of S. may not review sentences and proceedings of a church court unless the latter has exceeded its jurisdiction or acted maliciously so as to violate a civil right, and where the value of the subject-matter in dispute does not exceed £25, the case may not be brought in the C. of S. There are two sessions, winter and summer, lasting from Oct. 15 to March 20, and from May 12 till July 20, respectively.

Courtois, Jacques (1621-76), Fr. painter, commonly called Le Bourguignon. He studied painting with his father, Jean C., and won his reputation as a battle painter. His scenes of the camp, the march, and the battlefield may be found in most of the prin. galleries of Europe. He entered the Society of Jesus in Florence, taking the habit in Rome

(1655), where he lived piously, and where he died.

Court, Presentation at, formal presentation to the sovereign of subjects whose status entitles them to this honour. In monarchical countries this ceremonial function is considered as the highest honour, and serves as a credential. Having once obtained this privilege people may claim to be presented by their country's representative at any foreign court and to be received everywhere. In England the names of all those desiring to be presented and of their presenters must be sent some days in advance to the lord chamberlain. The privilege is strictly guarded from abuse, and none are admitted unless accepted and approved of both by the sovereign and the lord chamberlain. Each lady who makes a presentation is required to become sponsor (in its fullest sense) for her presentee. Cases of undesirable introduction are rare, but should they occur a notice may be printed in the *Court Circular*, that 'the presentation is cancelled.' Those who are not Brit. subjects may be presented to the king of England by their own ambas. At the end of Victoria's reign ladies were most frequently presented at drawing-rooms held at Buckingham Palace in the afternoon. When the Prince and Princess of Wales presided on her behalf, such presentations were by royal command counted as a presentation to the sovereign. Gentlemen are presented usually at levees at St. James's Palace, held in the morning. The first levee was held at Buckingham Palace, 1840. King Edward replaced the drawing-rooms by courts, held at Buckingham Palace in the evening, but levees continue to be held at intervals also. There is an elaborate ceremonial at these functions, and full court dress must be worn by those invited. Presentations can be made at Holyrood Palace in Scotland to the lord high commissioner to the general assembly of the Church of Scotland.

Courtrai (Flemish *Kortrijk*) *tn.* in the prov. of W. Flanders, Belgium, 26 m. S.W. of Ghent, 16 m. from the Fr. border. The *tn.* is built on both sides of the R. Lys, over which is a fine old bridge with Flemish towers. The *tn.* is very picturesque with its old walls, its castle, and famous belfry. The Gothic church was founded by Baldwin, count of Flanders, in 1238, and the *tn.* hall dates from 1526. C. is a busy manufacturing *tn.*, and is celebrated for its table damask, fine linen, and lace. To the Romans it was known as *Cortoriacum*, but gained its industrial importance in the Middle Ages. Here, in 1302, was fought a 'battle of the Spurs' (not to be confused with Henry VIII.'s battle at Guinegate, 1513), when the citizens of Ghent, Ypres, and Bruges won a glorious victory over the Fr. Army, calling the battle after the golden spurs they plucked off the vanquished dead. C. was occupied by the Gers. in 1914, and recovered by the Allies in 1918. Again occupied by the Gers. in 1940, but liberated by the Brit. troops in 1944. Pop. 41,000.

Courts, Ecclesiastical, see ECCLESIASTICAL COURTS.

Courts-martial, courts usually convened for the purpose of trying offences against military or naval discipline, and also for administering martial law. Previous to 1640 ordinances were issued by the king for the trial of those offences, and justice was administered under the old court of chivalry of which the earl marshal was the president. The military laws adopted by the commanders during the Thirty Years war, however, were not without their effect on Eng. military law, and we may safely say that C.-M. were instituted in the reign of Charles I. They did not receive parl. sanction, however, until the Mutiny Act of 1689 was passed and from that date until 1879 C.-M. administered the discipline laid down in the articles of war. In that year the Army Discipline and Regulation Act was passed, and two years later the Army Act (1881) superseded that. C.-M. are divided into three different classes: (1) A dist. court-martial, (2) a general court-martial, (3) a field general court-martial. A dist. court-martial is convened by a general officer having authority to do so; it must be composed of at least three officers, each of whom has served at least two years, and it can give punishment to the extent of two years' imprisonment. A general court-martial is the only court which has authority to try an officer, or to pass a death sentence, or a sentence involving penal servitude. It must consist of nine officers, five of whom have at least the rank of captain in the United Kingdom, Gibraltar, or Malta. Elsewhere in the dominions it must consist of at least five officers. A field general court-martial is convened when it is held necessary by the officer in command of troops outside the United Kingdom, or by an officer on active service, and when it is impossible to convene an ordinary general court-martial. The court must consist of at least three officers, each of whom has at least one year's service. The ordinary procedure of an ordinary court-martial must be maintained as far as possible, and the prisoner is allowed to conduct his own defence and to address the court himself. The experiences of the First World War gave an impetus to the humanitarian tendency in the infliction of punishment upon military offenders, and to this tendency may be traced the modification of the power of C.-M., particularly in the abolition soon after the war of the death sentence in certain cases. These cases are leaving one's commanding officer in order to go in search of plunder; sleeping or being drunk when on sentry duty; breaking into a house in search of plunder; forcing or striking a soldier who is acting as a sentinel; and forcing a safeguard. Public opinion also strongly animadverted on certain forms of field punishment, in view of which flogging and the tying of offenders to guns or vehicles have been abolished. Following the recommendations of the committee, appointed after the war, improvements were effected in procedure and in the requirements as to

the qualifications of officers constituting a court, and regimental C.-M. were abolished, a change justified by the marked diminution of crime in the Brit. Army. Sentences of C.-M. during the First World War were not always put into execution and the services of offenders were retained in the field by the operation of the Army Suspension of Sentences Act, which, passed in 1915, is still operative. In Oct. 1946, as a sequel to the quashing of the sentences on 243 Brit. paratroopers for mutiny against their living conditions in Malaya, a number of M.P.s demanded that persons sentenced by C.-M. should have the right to appeal to high court judges either through the court of criminal appeal or some special court.

The R.A.F. has its own code of law, which is largely based on military law, and, in consequence, its court-martial procedure is analogous to that of the army.

Naval Courts-martial.—These courts are held under the authority of the Naval Discipline Act, 1866, which was amended in 1884. From the time of the Stuarts down to the time of the third George, discipline in the navy was regulated only at the discretion of the commanders, under the authority of the Admiralty. In more cases than not, this meant that the law was badly administered, and depended too largely upon the whims and fancies of the commander. Under the Naval Discipline Act, however, the court must consist of from five to nine officers of certain fixed rank. The court also must be held on board one of H.M. ships of war, and there must be at least two such ships together at the time. The sentence, save in the case of the death penalty, does not need confirmation by the commander-in-chief of the station. The court also has the power of reducing the gravity of the charge, and sentencing the prisoner on the reduced charge. The Naval Discipline Act also lays down definitely the jurisdiction of the courts which have by that Act authority to deal with any offender who is for the time being directly or indirectly connected with the navy or naval authorities.

Courts-martial Reform.—A reorganisation of the system of army and air force C.-M. is recommended in the report of the Lewis Committee (pub. as *Cmd.* 7608, 1949). The changes recommended include the provision of legal aid before and during trial, the appointment of directors of legal services in the two service ministries, the estab. of a C.-M. appeal court, and a reconstitution of general and dist. C.-M. It is suggested that the judge advocate general (*q.v.*) should be appointed on the recommendation of the lord chancellor (instead of by the Crown) and be responsible to him. His new title should be chief judge martial and he should enjoy a status and remuneration not less than that of a puisne judge of the high court. In the Lewis Committee's view general C.-M. should be composed of a judge martial or his deputy and five officers of at least the rank of

lieutenant or flying officer. Dist. C.-M. should be under a permanent president and restricted in jurisdiction to offences for which the maximum penalty is imprisonment, and to soldiers and airmen below warrant rank. It is also proposed that the field general court-martial should be called an emergency court-martial, and that it should not be held in peace time in the United Kingdom. In special cases, such as sentence of death for treachery, the sentence should not be executed immediately unless the convening officer and the next two senior officers in the force (who did not sit on the court-martial) affirm the conviction and conclude that the interests of discipline so require. The report also makes far-reaching proposals in relation to appeal against conviction. Whenever the accused has pleaded not guilty it is proposed that he should have the right of appeal on a question of law. The court of appeal, to be called the C.-M. appeal court should, it is recommended, be formed of the chief judge martial, the vice-chief judge martial, and the judges martial, with the assistance of king's counsel from a panel approved by the lord chancellor. It is not proposed that the court should hear appeals against sentence. Certain of the above new features proposed by the Lewis Committee already form part of the naval C.-M. system. In regard to others the Admiralty is taking administrative action on similar lines to the War Office and Air Ministry. In particular the judge advocate of the fleet will in future be appointed by, and will be responsible to, the lord chancellor instead of the first sea lord. It has been decided to set up a committee under Mr. Justice Pilcher, of similar composition to the Lewis Committee and of equal authority, to examine the naval C.-M. system. A decision as to legislation on such major recommendations of the Lewis Committee as have not yet been adopted will be withheld until the Hicher report is available.

Couserans, or Conserans, Le, anct. dist. of the Pyrénées in France, situated near the frontier. It forms a part of the dept. of Ariège at the present time, but was at one time a dependency of the former prov. of Gascony, its cap. being St. Lizier.

Cousin, Jean (1501-89), Fr. painter and sculptor, b. at Soucy, near Sens. Very little is known of his life. He began as a painter on glass. The windows in the Sainte Chapelle, Vincennes, are considered his best work. The windows of St. Gervais, Paris, representing the death of St. Lawrence, and others in the church of Sens, are among his finest work. His most celebrated picture in oils is the 'Last Judgment,' now in the Louvre. Oil paintings had previously been confined to portraits among his countrymen, and therefore C. is regarded as the founder of the Fr. school, certainly in the historical dept. C. was also a goldsmith, miniaturist, and wood engraver. In sculpture his prin. work is the monument of Adm. Chabot, in the church of the Celestines.

He also wrote books on geometry and perspective. His chief publs. are *Livre de Perspective* (1560) and *Livre de Portraiture* (1571). *Consult* A. Firmin-Didot, *Etude sur Jean Cousin*, 1872.

Cousin, Victor (1792-1867), Fr. philosopher and historian, b. at Paris and educated at l'Ecole Normale, Paris. By 1811 he was Royer-Collard's assistant lecturer in philosophy at the Sorbonne. C. was at first a follower of the Scottish psychological ('common-sense') school of Reid and Dugald Stewart; after his visit to Germany, 1817-19, he showed the influence of Kant, Hegel, Fichte, and others. In 1820, after the assassination of the due de Berry, C. was for a time dismissed from his office because of his Liberalism. During his second visit to Germany, 1824-25, he was arrested at Dresden, suspected of revolutionary tendencies, and detained for some months at Berlin. He returned to France and regained his position, in 1828, under Martignac's ministry. By this time he had pub. his eds. of Proclus and Descartes (1820-26), and the first vols. of his trans. of Plato. C. became director of l'Ecole Normale in 1830. He was minister of public instruction in the Cabinet of Thiers in 1840, and a member of l'Académie des Sciences Morales et Politiques. After the revolution of 1848 C. aided the gov. of Cavaignac, publishing an anti-socialistic pamphlet, *Justice et Charité*. He retired from public life after the coup d'état of 1851. He was founder of the 'eclectic' system, so named by himself; this system or school derived its doctrines partly from Scottish philosophy and partly from Ger. Among his chief works are *Fragments philosophiques* (1826-28); *Cours d'histoire de la philosophie* (1827-40); *De la métaphysique d'Aristote* (1835); *Œuvres inédites d'Avicenne* (1836); *Cours de philosophie professée en 1815* (1836); *Cours d'histoire de la philosophie moderne* (1841); *Cours d'histoire de la philosophie morale au XI^e siècle* (1846); *Leçons sur la philosophie de Kant* (1851); *Études sur les femmes et la société au XVI^e siècle* (1853-56) (Mme de Longueville, Mme de Sablé, Mmes de Chevreuse et de Hautefort); *Des pensées de Pascal* (1842); *Jacqueline Pascal* (1844); and *Du vrai, du beau, et du bien* (1858) (his best-known work). See C. E. Fuchs, *Die philosophische Cousins*, 1847; P. Janet, *V. Cousin et son œuvre*, 1885; and J. Barthélemy Saint-Hilaire, *V. Cousin, sa vie et sa correspondance*, 1895.

Cousin (Lat. *consobrinus*), kinsman (like the Lat. *consanguineus*, a blood relation), especially applied to the child of one's uncle or aunt. If A and B are C's, A's child is a first C, once removed to B. The children of brothers or sisters are C's-german (full or first C's). Children of C's-german are second C's to each other. In some parts of Cornwall and Somerset cousin merely means friend or comrade (cf. Scottish friend, meaning kinsman). European sovereigns used to call each other C. or coz (see Shakespeare's *Henry V.*). This name is still used by sovereigns for their nobles.

Cousin-Montauban, Charles Guillaume Marie Apollinaire Antoine, Comte de Palikao (1796-1878). Fr. general. He commanded the Anglo-Fr. forces in the expedition against China, winning the victory of Palikao in 1860. For this the Emperor Napoleon granted him his title after the fall of Peking. He was Premier and war minister from Aug. to Sept. 1870, at the beginning of the Ger. war. After the disastrous battle of Sedan he fled from the country, refusing the dictatorship offered him. C.-M. wrote *Un ministère de vingt-quatre jours* (1871) describing his experiences.

Cousins, Samuel (1801-87). Eng. mezzotint engraver, apprenticed to S. W. Reynolds. He produced his 'Lady Acland and Children' and 'Master Lambton' after Lawrence in 1826. These engravings won him a reputation, and were followed by numerous plates after Lawrence, Landseer, Reynolds, Millais, and others. 'Marie Antoinette in the Temple' is another famous work. C. became A.R.A. in 1835, and first academical engraver in 1855, retiring in 1880. He left £15,000 to found academy annuities for poor artists. See *Pycroft's Memoir*, 1887.

Coustou, name of three Fr. sculptors: Nicolas Coustou (1658-1733), Fr. sculptor, b. at Lyons. His chief works are a statue in marble of Louis XV. (in the Louvre), 'Daphne pursued by Apollo' (in the garden of the Tuilleries), and the 'Descent from the Cross,' commonly known as 'Le Vœu de Louis XIII.' (in the choir of Notre Dame).

Guillaume Coustou (1678-1716), brother of Nicolas, and with him a pupil of his uncle, Antoine Coysevox (q.v.). He entered the academy of Paris in 1701 with 'Hercule sur le Bûcher.' He executed the bas-reliefs of the chief entrance to the Hôtel des Invalides, and the statues of the façade of the Château d'Eau, opposite the Palais Royal. Other works of his are a statue of St. Augustine, 'Faith and Religion,' and 'Jesus Christ in the Temple.'

Guillaume Coustou (1716-77), son of the above, b. in Paris. He won the Prix de Rome at the age of nineteen. He designed the sculptures formerly in front of the church of St. Geneviève, and executed in bronze 'The Visitation.'

Coutances, cap. of an arron. in the dept. of La Manche, France. 5 m. from the Eng. Channel. It stands on the slope of a hill, on the summit of which rises a medieval cathedral (thirteenth century), which is one of the finest examples in Normandy of the early Pointed style. The church of St. Peter's, built in the Gothic style, is also of great interest. The tn. stands on the site of anct. Constantia of the Romans. It has manufs. of silks, muslins, lace, etc. Amer. motorised infantry and two tank divs., in the battle of Normandy, 1944, drove through the Ger. defences and cut their road between St. Lô and C. (July 25). This was a decisive blow, for the Amer. general, Omar Bradley, then sent a succession of columns toward Avranches, C., and

Granville, which split up the retreating Ger. forces, while trapping a considerable body of the enemy below C. See also COTENTIN. Pop. 6400.

Couthon, Georges (1755-94), Fr. politician and revolutionary leader, who became president of the Clermont tribunal in 1789. He disapproved of the Sept. massacres, but voted for the death of Louis XVI. Gradually he became more and more Radical, and sided against the Girondists. His entrance into Lyons was, however, marked by comparative



GEORGES COUTHON

moderation. He helped Robespierre to destroy the partisans of Hébert and Danton, but shared his leader's fate in 1794. See F. Meggs, *Correspondance de Couthon*, 1872; F. V. A. Aulard, *Les Orateurs de la Législative et de la Convention*, 1885-86; and H. Morse Stephens, *History of the French Revolution*, 1886-91.

Coutras, tn. in the dept. of Gironde, France, on the Dronne, 26 m. N.E. of Bordeaux. It is the site of the famous victory of Henry of Navarre over the Catholic League, headed by Henry III., 1587. The trade is chiefly in wine and flour. Pop. 5200.

Coutts, Baroness Angela Georgina Burdett, see BURDETT-COUTTS.

Coutts, Thomas (1735-1822), famous London banker, of Scottish birth, founder of the bank house, Coutts & Co., of which he became sole manager on the death of his brother James in 1778. He became banker to George III., and left a fortune of £900,000. C. married twice, his second wife being the actress Harriet Mellon. His grandchild was Lady Angela Burdett-C. (d. 1906). See R. Richardson, *Coutts & Co.*, 1900, and R. Chambers, *Biographical Dictionary of Eminent Scotsmen*, 1875.

Couvade (Fr. *couver*, to hatch), term

applied by anthropologists for the curious custom prevalent among sev. races in different parts of the world, requiring that the father at, and sometimes before, the birth of a child shall retire to bed and fast from all animal food. The mother continues her work in the fields until a few hours before the birth, and returns to it as soon after as she can stand, while the father affects to suffer all the physical pains and is waited on hand and foot by the women. The custom existed in ant. times among the Corsicans (recorded by Diodorus) and among the Sp. Basques (recorded by Strabo); the statement that the custom still exists among the latter has been proved to be incorrect. It is still found in Guiana, in Tibet, and in some parts of China and India. No certain explanation can be found. Prof. Tylor adopts the view that it is the transition between the older matriarchal system, by which children reckoned their descent from the mother alone, and the later patriarchal system of tribe organisation. See E. B. Tylor, *Early History of Mankind*, 1865; A. Giraud-Teulon, *Les Origines de la Famille*, 1884; and Lord Avebury, *Origin of civilisation*, 1900.

Cove, see Q. KENSTOWN.

Covenant (through O.F. from Lat. *convenire*), mutual agreement made by two persons or groups of persons, or by a person or persons with their god or gods. The term (Heb. *berith*) is much used in the O.T. for various kinds of agreements. They were looked upon as sacred and binding, the children of Israel being particularly forbidden to make any C. with the Canaanites. More important, however, than these contracts are the C's. made between Yahweh (Jehovah) and his chosen people. All these C's. are considered to be summed up in the C. made with Moses on Sinai, spoken of in Isa. lv. 3 as 'the everlasting covenant.' It was, however, perpetually renewed throughout the O.T. period, particularly with chosen individuals such as Adam, Noah, and Abraham, before Moses, and by the mouth of the prophets in later times. This C. is expressly conditional. God is the active agent promising favour and prosperity to the Israelites, but the Israelites have their part to perform. They must be submissive and obedient if the C. is to be valid. Their failure to adhere to their side of the contract finally made the old C. to be annulled and a new one, the N.T. C. in Jesus Christ, to be made. This rests on a basis of faith, and is fully dealt with by St. Paul and the writer of the epistle to the Hebrews as the fulfilment of the original C. made with Abraham. See 2, Schultz, *Old Testament Theology*, vol. ii., 1892.

Covenant, in law, is a written agreement under seal (i.e. in a deed) between two or more persons whereby some act is agreed to be done or not to be done; or upon the happening of some event, some liability is agreed to be borne by some party thereto. C's. may be express, e.g. not to use a house for any other purpose than as a dwelling-house; or implied, e.g. in a conveyance on sale the words 'as

beneficial owner' imply C's. that the vendor of the land has a right to convey, that the land is free from encumbrances, that the purchaser shall be left in quiet enjoyment of the land, and that the vendor will make any further deed for the conveyance of the land that may prove necessary. C's. are said to 'run with the land' when they bind any one to whom the land in respect of which they have been entered into is assigned. A breach of C. gives rise to an action of damages, and in some cases the covenantor may sue for an injunction to restrain a threatened or intended breach.

Covenant of the League of Nations, short statement of essentials to the formation of the League of Nations, incorporated in the treaty of Versailles, 1919. It contained twenty-six clauses, and might be regarded as the constitution of the League. Its primary purpose was the prevention of war, and of necessity it envisaged the League as an organic body capable of seeing to its own development and did not therefore do more than provide in general language such tentative machinery for securing international peace as at the date of the treaty was likely to command mutual agreement among the signatories of the treaty. There was no outlawry of war as such in the C., and the obligations laid on the signatories in the matter of the prevention of war were definitely limited in scope. These obligations were imposed by Articles 12, 13, 15, and 16. Under Article 12 the members of the League agreed to submit disputes either to arbitration or to inquiry by the League council, and, in any case, not to resort to war until three months after the award by the arbitrators or the report by the council. This article contained no absolute prohibition of war; it merely made provision for an interim period during which other means than resort to war might be employed towards finding a settlement. In the event of one disputant being dissatisfied with the award of the arbitrators and declaring war on the other disputant, who might have faithfully observed the award, a purely negative obligation was imposed by Article 13 on all members of the League other than the recalcitrant disputant, viz. that they would not resort to war against the complying disputant. In the case of a dispute submitted in the first instance, not to arbitration, but to inquiry by the council, it was provided by Article 15 that the members would not go to war with any other party to the dispute which complied with the recommendations of the council's report. But if the report was not unanimous, no obligation whatever was imposed on League members, who 'reserved to themselves the right to take such action as they shall consider necessary' the maintenance of right and justice. Again, if a disputant failed to wait the stipulated time until the machinery set up by the League for seeking a solution other than war had been put into operation, then, under Article 16, the recalcitrant member was deemed to have committed an act of war against all other

League members, and two sanctions, the one economic, the other military, naval, or aerial, might come into operation. In many cases the mere threat of an economic blockade would be effective, as was shown by the sudden cessation of the invasion of Albania by Yugoslavia in 1921. But, indeed, the threat was inadequate on the face of it because the C. provided no clue to the questions as to who was to say when the military sanction should operate, or who was to decide its nature and direct its application against the common enemy. The C. imposed no compulsory contribution of military, naval, or air forces, and the duty of the council was solely one of recommendation, for there was no definitely organised force at the disposal of the League council. These defects of Article 16 of the C. were discussed at the 1921 assembly of the League, with the result that its text was altered by resolution so as to speed up the operation of sanctions in a crisis. This resolution imposed on the council the duty 'to give an opinion whether or no a breach of the covenant had taken place', but the assembly made it clear that the council could do no more than *invite* members to apply the economic blockade, and then later on *recommend* certain particular contributions towards the forces it might be proposed to employ against the recalcitrant state. It is to be noted, however, that this amendment was never ratified by the requisite number of members, and could not therefore be included in the official text of the C.

It did not follow from the restricted character of these obligations that the prin. articles of the C. were always valueless. On the contrary, they were sometimes instrumental in averting war, as, for example, in the case of the Greco-Bulgarian frontier dispute of 1923. But, generally speaking, the C. proved a *fulmen brutum* and, in one instance, the ill-advised action of the Brit. Gov., in applying economic sanctions to Italy when Mussolini invaded Abyssinia, not only proved entirely ineffective, but gravely imperilled the traditional friendship that had so long subsisted between the Brit. and It. nations. No really grave dispute between two great nations was ever averted by the C., and when such disputes threatened to assume a serious aspect, one or other of the disputants adopted the course of resigning its League membership and reserved its entire freedom of action. Even small nations were undeterred by the League. Thus, in the prolonged dispute between Paraguay and Bolivia over the Gran Chaco, the C. machinery failed of its purpose. Again, the League failed to check Italy in the Corfu incident of 1923, and during the ensuing years it became evident that when a totalitarian state regarded its vital interests as being affected in a dispute it declined to tolerate League interference. In 1932 the C. machinery was strained to breaking-point when Japan invaded Manchuria and, again, in 1935-36, in the Italo-Ethiopian war. It was attempted

to explain away the former of these failures by assuming that there existed no reliable central government in China, and that Japan had really confronted the League with a *chose jugée*. The ensuing Lytton report plausibly stressed the interests of Japan and, to some extent, this emphasis reflected that by no means negligible section of world opinion which applauded Japan's adventure as calculated to restore order and good government in China. The report, however, did not even placate Japan and, in face of her condemnation as an aggressor by the League, she resigned her membership in order to pursue, thenceforward, her own course in China. When the clouds began to darken the Italo-Ethiopian political horizon, strenuous efforts were made to avert the threatened It. invasion of Abyssinia by action under Article 15, while the League council also strove to appease Italy by formulating a comprehensive programme of reforms in Abyssinia under a guarantee of collective assistance from Great Britain and France; and when this programme was rejected the League applied economic sanctions, only to abandon them soon afterwards as ineffective. It is perhaps needless to observe that no attempt was made to invoke the machinery of the C. in the case of the invasion of Austria, Czechoslovakia, and Poland by Hitler, and thereafter the European political situation developed as if there were no League in existence.

It may be noted that Article 8 of the C. reflected the recognition by members of the necessity for reducing national armaments 'to the lowest point consistent with national safety,' and entrusted the council with the duty of making plans for the reduction of armaments and the supervision of munitions factories. That, however, was as far as the framers of the C. went in the sphere of disarmament (*q.v.*). Brief reference may also be made to Article 10, which stated that the members undertook to 'respect and preserve, as against external aggression, the territorial integrity and existing political independence of all members'; and that 'in case of any aggression or threat of aggression,' the council 'shall advise upon the means by which the obligation shall be fulfilled.' This article, however, was so ambiguous, when read in conjunction with the rest of the C., that it was almost meaningless; and indeed it was against this particular article that much of the opposition to the C. in the U.S.A. was directed. The two cardinal objections by the U.S.A. were that the article might involve the U.S.A. continually in purely European disputes over frontier adjustments, and that its natural interpretation was to perpetuate for all time the territorial *status quo*. Finally mention may be made of Article 14, which contained provision for instituting a Permanent Court of International Justice, but the court was not estab. until 1921 (*see* INTERNATIONAL COURT OF JUSTICE, COURT OF; OPTIONAL CLAUSES).

In 1938 at the nineteenth session of the

League assembly the Brit. representative summarised his gov.'s attitude to the revision of the C. thus: (i) there should be no unconditional obligation on states to apply Article 16, as each case must be considered on its merits; but (ii.) there should be a general obligation between states to consult as to whether and, if so, to what extent they would act in common under that article; (iii.) each member should be free to judge of its own participation in action under Article 16; and (iv.) the foregoing three principles should in no way diverge from the principle that

the council which had to call for action (sanctions) if forcible restraint was to be used. According to the Dumbarton Oaks plan, the council (called, for this reason, the security council) would alone shoulder the burden of keeping the peace; and for this purpose it would be aided by a military staff committee consisting of the chiefs of staff of the great powers (or their representatives). Moreover, in order that an aggressor state might be immediately restrained, all member-states of the United Nations Organisation would have entered into agreements with



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DUNOTTAR CASTLE IN KINCARDINESHIRE, WHERE COVENANTERS
WERE IMPRISONED

resort to war was a matter of concern to the whole League. Further consideration of the question of League reform was, however, indefinitely postponed by the growing tension in Europe leading to war in the succeeding year.

The C. has been described by Dr. Gilbert Murray as a 'call to repentance.' It rang with a moral tone; it called for the renunciation of war, for justice, and for 'a scrupulous respect for all treaty obligations'; it declared that any war or threat of war, wheresoever it might occur, was 'a matter of concern to the whole League.' Perhaps it was because these aspirations came to nothing that the Dumbarton Oaks conference (Aug.-Oct. 1944) produced a plan that invoked no principles, but contained practical arrangements for restraining an aggressor. Under the League C. a dispute likely to lead to war could be brought before either the assembly or the council, although it was

the security council to determine their quota of military assistance for collective operations. This quota would include air force contingents which would be held, in each state, immediately available. There would therefore be an international force which could, in whole or part, be mobilised at the security council's command, if the interruption of diplomatic and trade relations, for which the council would first call, proved ineffective. These powers, vested in the security council, were much more precise and formidable than the powers of request for sanctions allowed to the council of the League. See further under UNITED NATIONS, CHARTER; S.A. FRANCISCO CONFERENCE.

Covenanters, name given to all subscribers to the various undertakings entered into by members of the Reformed Church in Scotland, from 1557 onward, for the defence of their faith; is especially associated with the signatories of the

Solemn League and Covenant (see also COVENANTS, THE), 1638-43. The Scottish Presbyterians co-operated with the Eng. Puritans in putting down episcopacy, and were in their turn crushed by Cromwell and the Independents. Charles II., needing Scottish support, signed the covenant in 1650, and again in 1651, but after the Restoration denounced it as unlawful (1662). The nobles mostly yielded, but thousands of the Scottish people stood firmly by their principles and attempted resistance. The battle of Rullion Green (1666) dispersed the insurgent army, and fearful persecutions followed, lasting for years. In 1679 the C. rose again, and won a small victory at Drumclog, but were completely crushed three weeks later at Bothwell Bridge. The cruelties of Dalzell, Claverhouse, and Lauderdale are notorious in Scottish hist., and the martyrology of the cause is told in many a legend. 224 C. were removed from imprisonment in the Tolbooth and Canongate of Edinburgh, and 167 (of whom forty-five were women) lodged in unspeakable conditions in the 'Whigs' Vault of Dunottar Castle, near Stonehaven. After their ultimate release some took the Oath of Allegiance, but others, refusing, were sent to the plantations in America. The struggle was at last ended by the revolution of 1688. Scott's *Old Mortality* gives a vivid account of the insurrection of 1679. See J. Alkman, *Covenanters in Scotland*, 1848; F. Hewison King, *The Covenanters*, 1913; A. Smellie, *Men of the Covenant*, 1911; and R. C. Bosanquet, *Cavaliers and Covenanters*, 1932.

Covenants, The, in Scottish hist., were certain public religious bonds entered into by the whole Scottish nation. They were two in number, the National Covenant and the Solemn League and Covenant, but they were preceded by sev. earlier religious bonds entered into by leading reformers and statesmen at the beginning of the Reformation period. The National Covenant is also known as the Short Confession of Faith to distinguish it from the more elaborate exposition set forth by Parliament in 1560. It was drawn up at the command of James VI. by John Craig, one of his chaplains, its aim being to maintain the Protestant faith with the Presbyterian organisation, and to resist the attempts being made by the papal see to regain its hold upon Scotland. It gives a short account of the faith which is to be supported, and then contains an oath of allegiance to the king in support of the same. The National Covenant was subscribed by all ranks of society in 1581, on the order of the king, Privy Council, and general assembly. It was renewed in 1590, after the defeat of the Armada, and again in 1598. It was once more brought into use in 1638, to unite the people in resistance to the attempt of Charles I. to impose episcopal organisation and a prayer-book on the Eng. model upon the Scottish people. In Greyfriars churchyard at Edinburgh, the covenant was signed by multitudes, and copies were then sent throughout the country. Many

are still extant, a notable copy, bearing the names of many distinguished men, being in the library of the Faculty of Advocates at Edinburgh. The Solemn League and Covenant was a treaty between the Eng. and Scottish nations by which the Eng. Parliament received help from the Scots against Charles I. on conditions given therein. The covenant was signed in England by the Parliament, the Assembly of Divines, and all classes, and it was also universally signed in Scotland. The Protestants of Ireland also subscribed to it. Its aim was to preserve and propagate the reformed faith by securing uniformity of doctrine, worship, discipline, and government throughout the three countries, and this uniformity was generally understood to signify uniformity on the Presbyterian model. The National Covenant was renewed by Parliament in 1640, the Solemn League and Covenant in 1648, and both were subscribed by Charles II. at Speymouth in 1650 and at Scone in the following year. After the Restoration both C. were declared unlawful (1662) and later treasonable (1685). See W. L. Mathieson, *Politics and Religion in Scotland, 1550-1695*, 1902.

Covent Garden, square in London between Long Acre and the Strand. The name is corrupted from Convent Garden, the dist. being the original site of the garden of the abbot of Westminster. The square was laid out in 1632 by Inigo Jones, who designed the portico of St. Paul's, C. G., as the feature on the W. side of the proposed square, regardless of the fact that the altar would have to be at the E. end of the church, with the result that the portico can never be used. C. G. soon became a fashionable quarter. It is the scene of one of Dryden's plays, and is frequently alluded to in other plays of the period. It is now famous for its vegetable, fruit, and flower market, which makes it one of the sights of London. It is seen at its best very early on a summer morning.

Covent Garden Theatre and Royal Opera House. This famous London theatre (almost opposite Old Bow Street police court), now the home of grand opera, was first built in 1732 by the harlequin Rich. At its opening Quin was the leading actor. The present building is practically the fourth on the same site, as the alterations in 1792 amounted to a new theatre. It was burnt down in 1808 and rebuilt by Smirke. The increased prices of admission to cover the costs led to the 'old price riots' of 1809. In 1847 it was called the Royal Italian Opera House. Another fire in 1856 resulted in the present building by Barry, opened in 1858, seating about 2000. The interior is almost semicircular, the stage 90 ft. deep by 50 ft. high. A noticeable feature outside is the Corinthian portico of six columns, with the statues and reliefs by Flaxman and Rossi (saved from the former buildings) ranged on either side. The basement forms a covered carriage entrance to the theatre. Garrick played at C. G. in 1746, joining Rich for the season, 1747. C. G. and Drury Lane (first opened 1663) Theatres

have always been rivals. In 1750-51 *Roméo and Juliet* was produced in rivalry at both houses alike. Peg Woffington performed at C. G. from 1740 to 1757. By 1803 John Kemble was part-proprietor and stage-manager. At this time Mrs. Siddons was the leading actress. She retired in 1812, after playing *Lady Macbeth*. In 1817 John Kemble retired in favour of his brother Charles. The theatre then drifted for a time into great difficulties, and in 1829 was in possession of the bailiffs. Laporte of Her Majesty's and Bunn of Drury Lane were managers, 1832-35. Osbaldestone followed, presenting the tragic actress, Miss H. Fancit, in 1836. Macready, Mathews, and Mme Vestris leased the theatre later. From 1842 to 1859 Jullien's promenade concerts were often held here. The house was opened for opera, 1848, with F. Gye as manager. This venture proved successful, and Gye introduced Gounod and Wagner to London, amongst other composers. Grisi, Mario, and Viardot were all noted singers of this period. From 1888 to 1896 A. Harris took over the management. He devoted his efforts to raising the standard of the whole cast, and not relying solely on the prima donna. After his death a company took over the management. C. G. was leased to the Anti-Corn Law League for its meetings and bazaar, 1843-45.

In 1896 Mr. Neil Forsyth became secretary of the Royal Opera Syndicate, and for many years acted as general manager and held auditions. The secretaryship of the C. G. Syndicate Ltd., in 1930, was vested in S. C. Edgar. Some of the famous singers heard in C. G. were Patti, Alboni, Albani, Tetrazzini, and Summarco. In more recent times the Russian singer Chaliapin charmed opera-lovers, and a few of the newer stars of the musical world to appear at C. G. were Florence Austral, Lotte Lehmann, Rosa Ponselle, a *coloratura* singer of Amer.-It. origin; Rudolf Bockelmann, a Ger. bass-baritone; and Eva Turner and Walter Widdop, two gifted Eng. operatic singers. Bruno Walter was the conductor of the Strauss and Wagner operas at C. G. in more recent years. Sir Thomas Beecham mooted a scheme for an Imperial League of Opera, but the inadequate public response, and the absence of guaranteed support over any considerable period, proved so serious a handicap to the development of grand opera in Great Britain, that until an arrangement was made at the end of 1930 between the C. G. Opera Syndicate and the B.B.C., it seemed improbable that the C. G. seasons would have continued, otherwise than in a limited sense, beyond 1932. The arrangement with the B.B.C., however, provided for production over a number of years, the undertaking being administered by a new company known as the C. G. Opera Syndicate (1930) Ltd.

The grand opera season is from about April to July each year. See D. Shave-Taylor, *Covent Garden*, 1948.

Coventry, Countess of, see GUNNING, MARIA.

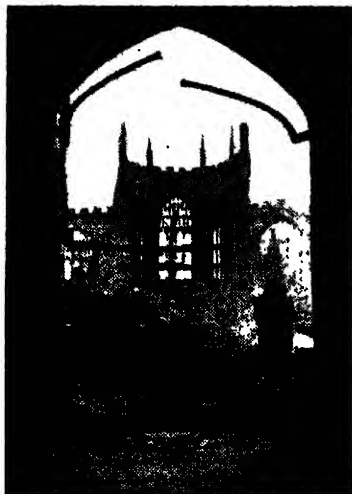
Coventry, Sir John (d. 1682), grandson of Lord-Keeper Thomas C. He was M.P. for Evesham in the Long Parliament (1640), and was made a Knight of the Bath at the coronation of Charles II. In 1667 he was elected M.P. for Weymouth, and during a debate on playhouses in 1670 asked whether the king's pleasure lay among the men or the women who acted, popularly supposed to be an allusion to Nell Gwynne. His mutilation by Sir T. Sandys and a band of ruffians in consequence of this remark led to the passing of the Coventry Act which made such mutilation a capital offence. See Pepys's *Diary*.

Coventry, parli. and co. bor. in Warwickshire, England, on the R. Sherbourne, 9½ m. from Warwick, 18 m. S.E. from Birmingham, 10 m. N. from Leamington, and 26 m. N.E. from Stratford-on-Avon. It possesses a station on the main line from Birmingham to London (94 m.), with a branch to Nuneaton and another to Leamington. It has also the advantage of a canal, and thus waterway has connection with the Oxford and Trent and Mersey canals. In 1936 an airport was estab. by the city council. The city returns two members to Parliament.

C., anciently Coventre, and in Domesday Coventrey, is conjectured by Dugdale from the termination 'tre,' a place or dwelling, to have been a Brit. settlement. In 1451 it was constituted by Henry VI. a co. of itself, and this privilege continued until 1843, when it was abolished by an Order in Council, but under the provisions of the Local Government Act, 1888, the distinction was revived, and the place declared a co. bor. A convent appears to have been founded here at an early period of which, in 1016, St. Osburg was abbess, when Edric, invading Mercia, destroyed it. At a later period, in the time of the Confessor, Leofric, earl of Mercia and his countess, Godiva, erected and munificently endowed a monastery on the same site for an abbot and twenty-four monks of the Benedictine order. The famous legend of Godiva and her ride through the city appears to have been first recorded 250 years after the death of Leofric, which occurred in 1057. The city has long maintained a reputation as a manufacturing centre. In 1463 the making of caps and bonnets was extensively carried on, and the place was then famous for a particular kind of blue dye, whence came the saying, 'true as Coventry blue.' The manu. of ribbons was introduced about the beginning of the sixteenth century, and in 1770 that of watches, the first of which is still actively prosecuted. The staple trades now are the bicycle, motor cycle, rayon, motor car, aero engines, machine tools, aircraft, gauges and instruments, tractors, and general allied engineering.

The cathedral church of St. Michael, which possessed perhaps the deepest place in the affections of the people, was entirely destroyed, with the exception of the beautiful spire, by the enemy raid of Nov. 16, 1940. It was an edifice of surpassing beauty and dignity. The spire,

a magnificent specimen of perpendicular architecture, resting on an octagonal tower, rises to a height of 300 ft., and forms a conspicuous feature of the city. St. Mary's Hall was erected early in the fifteenth century. Within this noble apartment, in olden times, assembled many kings and queens and nobles to acquire honorary membership of the prin. guilds, and to enjoy the lavish hospitality of the wealthy merchant princes. The glass in the N. window was for the most part executed by John Thornton, a native of C., to whom is also attributed the famous E. window of York



Fox Photos

COVENTRY CATHEDRAL

The morning of its destruction, 1940

Minster. The glass was removed from the window at the outbreak of the Second World War, and is safe, but the roof was damaged, but now repaired. Ford's Hospital, a charming Tudor almshouse founded in 1509, was one of the many pathetic victims of Ger. bombing outrages. Fires caused by incendiary bombs completely destroyed this lovely old building, rightly considered one of England's finest specimens of Elizabethan architecture. Bond's Hospital provides further testimony to the generosity of C.'s wealthy merchant citizens of a bygone age. This almshouse was founded in 1506, and while the place was damaged in the raids it is hoped to restore it practically as it was in pre-war days. The origin of Holy Trinity Church is lost in obscurity, but sufficient records exist to show its great antiquity and the interesting fact that it was attached to the great, monastic estab., Dugdale mentioning its appropriation to the priory in 1269. The sacred and

historic building of Christ Church was included in the widespread wanton destruction of the raid of April 10, 1941, and was completely burnt out, only the walls and spire remaining standing. This church was notable as being one of the striking architectural group forming the celebrated Three Spires, and has a hist. dating back to Edward III. In the very heart of medieval C., breathing the spirit of the past, was the anct. Palace Yard, a quaint quadrangle of half-timbered buildings of the Elizabethan age, once the home of the Hopkins family, to whose memory a marble monument appeared in the cathedral. Originally there were twelve city gateways, but the only two remaining relics of the medieval city defences now to be seen are the Swanswell or Priory Gate in Hales Street, and Cook Street Gate in Cook Street. Both these have been restored, and are now in an excellent state of preservation. Fragments of the old city walls still remain near Cook Street Gate, and here a beautiful little garden, known as Lady Herbert's Garden, has been laid out by Sir Alfred Herbert, K.B.E. Almshouses are also on the site, the gift of the same donor, but unfortunately half of them were destroyed in the blitz. The C. and Warwickshire Hospital, founded in 1838, was first estab. in a small house in Little Park Street. In 1867 a new hospital was erected in Stonev Stanton Road, and enlarged from time to time over a period of years. In the course of concentrated attacks on the city the hospital was almost totally destroyed, the only part remaining being the out-patients' dept. and the nurses' home.

Most of the damage to C. was done in the city centre, and a plan for the new city centre has been prepared. The layout has been designed to produce wide thoroughfares and good vistas. The various units which contribute to the life of C. have been grouped together, and the new plan shows a shopping centre in which is envisaged two main blocks flanking a shopping avenue from which only pedestrians would have access to the recessed arcades. Service roads, approach roads, and parking areas are planned at the backs of the shopping blocks and off the main thoroughfares. Cinemas and theatres are co-ordinated to take their place in the design, and the cultural side of the city's life is not neglected. Sir Gilbert Scott, the well-known architect, has been engaged to plan the rebuilding of the cathedral. Plans have been worked out, but it will naturally be some time yet before a commencement can be made. Most of the munition factories of the city escaped during the bombing, as they were built on the periphery of the city. The only big factory destroyed in the city centre, engaged on munitions, was the Triumph Engineering Company, in Cope Street and Priory Street. Pop. 167,000.

Coventry, tn. in Kent on Rhode Is., U.S.A., 12 m. S.W. of Providence, has cotton and woollen manufs. Pop. 6500.

Cover: 1. In finance a term used in common with a method of speculating in shares by which it is possible to limit one's

loss to a specified amount, viz. the amount deposited to cover the sum the speculator is willing to risk in the deal. The amount deposited is called the C. If by settling day the difference in the price of the shares is such that the C. is exhausted, or has, as it is termed, run off, a further sum must be deposited with the broker, if the speculator desires to carry over. If not the account is closed. Where a transaction of this nature is entered into with a broker it is no doubt allowable by the rules of the Stock Exchange, and would not, without other evidence, be regarded in a court of law as a mere speculation in differences (*q.v.*). If the contract were made directly with a jobber it would be contrary to the Gaming Acts. Such transactions are common with outside brokers, who are really jobbers, and whose businesses go by the colloquial name of bucket shops. 2. Term used as a synonym for the security given for a loan, *e.g.* debentures, stock bonds, or title deeds, deposited with a banker as security for an overdraft.

Coverdale, Miles (1488-1568), bishop of Exeter, translator of the Bible. He was a native of Yorkshire and was educated in the house of the Augustine friars in Cambridge. He was ordained at Norwich in 1514, and the same year became an Augustine monk. But by 1526 he had entirely changed his religious opinions; he left his convent and preached against confession, and likened the worship of images in churches to idolatry. In 1532 he travelled on the Continent, and possibly assisted Tyndale in his trans. of the Bible. In 1535 his own trans. 'out of Douche and Latyn' appeared, with a dedication to Henry VIII.—the first complete Bible printed in Eng. The Psalms of C.'s Bible are those used in the Book of Common Prayer. In 1538 C. superintended the printing of a trans. in Paris. Many of the copies were seized by the Inquisition, but a few reached England, which enabled the noted printers, Grafton and Whitchurch, to bring out the Great Bible in 1539. C. became bishop of Exeter in 1551. During Mary's reign he sought refuge on the Continent, where he took part in the production of the Geneva trans. (1557 and 1560). C. returned from exile in 1559, but, owing to the principles he had imbibed from continental reformers, he was not restored to the see of Exeter. In 1561 he accepted the rectory of St. Magnus, London, but resigned two years later. C. wrote many tracts in order to promote the doctrines of the Reformation, and trans. works of his friends on the Continent. A complete ed. of his works and letters was issued by the Parker Society in 1841-46. See *The Memorials of Miles Coverdale*, 1838; and F. Fry, *The Bible by Coverdale*, 1867.

Covered Way, term used to describe a passage constructed in fortification outside the ditch of a fortress. It is usually about 11 yds. wide, and being between the counterscarp and the glacis, and protected by the latter as well as by traverses, is used as a safe position for sentries and for the movements of

small bodies of men towards assembling places.

Coverley, Sir Roger de, see ROGER.

Coverture, in law, is a term used to indicate the state of a married woman, who is considered as under cover or the power of her husband, and therefore called a *feme covert*. The condition of C. followed from the legal maxim that by marriage husband and wife became one person, and that the legal existence of the woman was incorporated into that of her husband. Since the passing of the Married Women's Property Act in 1882 the maxim above alluded to was bereft of practically all its force, and a married woman can now make contracts and deal with her property as she chooses, subject, in the case of settled property, to a restraint on anticipation clause. For recent legislation see HUSBAND AND WIFE.

Covilhão, tn. of Beira, Portugal, on slopes of Serra da Estrela, 47 m. N.E. of Coimbra. It has manufs. of woollen goods, and near it are valuable hot springs. Pop. 14,000.

Covington: 1. City of Kentucky, U.S.A., on the Ohio R., opposite Cincinnati, with a suspension bridge 2252 ft. long, a municipal airport, manufs. of X-ray apparatus, tobacco, textiles, etc. Pop. 62,000. 2. Co. seat of Allegheny co., Virginia, with a pulp and paper mill, etc., and sulphur springs. Pop. 6300.

Cow, see under CATTLE; DAIRY-FARMING.

Cowall, or **Cowal**, mountainous peninsular dist. of Argyllshire, Scotland, between Loch Long and the firth of Clyde on the E. and Loch Fyne on the W. It is about 40 m. long by 15 m. broad, and contains Lochs Goll and Eek, and the tn. of Dumoon.

Coward, Noel Pierce (b. 1899), Eng. playwright and actor, b. at Teddington. Began stage career at the age of eleven in *The Goldfish*. Has been styled the *enfant gâté* of the Eng. drama, from the audacity of his plays and their acceptance by the critic and the playgoer alike. Was successful in his own social skit, *The Porter* (1921), and in the production of *Fallen Angels*, a satire on 'modern' wives. Other plays include *Hay Fever* (1925); *Easy Virtue* (1926); and *Private Lives* (1930). Launched out as a composer of light opera, notably in the operetta *Billie Sweet* (1929). His patriotic milestone drama, *Caroline* (1931), was very popular. Other pieces: *Words and Music* (1932); *Conversation Piece* (1934); *To-night at Eight-thirty* (1936); *Billie Spirit* (1941); *Pacific*, 1960 (1947); and film: *In Which We Serve* (1943). Pub.: *Collected Sketches and Lyrics* (1931); *Present Indicative* (autobiography) (1937); and *To Step Aside* (1939). His plays have been widely played in the U.S.A. See P. Braybrooke, *The Amazing Mr. Noel Coward*, 1933.

Cowsajee, Sir Jeshangir Ready-money (1812-78), called the Peubody of Bombay, a Parsee merchant and philanthropist. At the age of fifteen he became warehouse clerk to the firm of Duncan, Gibb & Co., of Bombay. In 1816 he began trading on his own account, and soon amassed a large fortune, of which he gave away huge

sums to philanthropic institutions in Bombay. He was made C.S.I. in 1871, and created a Knight Bachelor of the United Kingdom in 1872.

Cowbane, see WATER HEMLOCK.

Cowbridge, bor. of Glamorganshire, Wales, 12 m. W. of Cardiff. Portions of the old Norman fortifications and wall still remain. The industry is entirely agric., and the tn. has good markets and cattle fairs. Pop. 1100.

Cowdenbeath, tn., Fifeshire, Scotland, 5 m. N.E. of Dunfermline; has coal-mines and blast furnaces. Pop. 11,900.

Cowdray, **Weetman Dickinson Pearson**, first Viscount (1856-1927), Eng. engineer and air minister. Head of a firm of engineers and contractors. Constructed the Dover harbour works, the Blackwall Tunnel, and the tunnel under the East R., New York. Was also engaged on the Tehuantepec Railway, Mexico. Appointed chairman of the Air Board in Jan. 1917. His great experience was invaluable in the board's work of constructing and delivering aeroplanes. Lord rector of Aberdeen Univ., 1918-21. See J. A. Spender, *Weetman Pearson, First Viscount Cowdray, 1856-1927*, 1930.

Cowell, **Edward Byles** (1826-1903), Eng. Sanskrit scholar, who, in 1856, was appointed prof. of hist. at Calcutta, and in 1858 principal of the Gov. Sanskrit College. In 1867 was prof. of Sanskrit at Cambridge. Among his pub. are *Pikramavāsi: an Indian Drama* (1851); *The Kusumāñjali* (1861); *The Aphorisms of Sāṅkhya* (1878); *The Sarra-Darsana-Samgraha* (1878); *Buddha-Karila* (1893); *The Jataka* (1895); *The Harsa-Carita of Bhaṭṭa* (1897); besides the completion, in collaboration with W. F. Webster, of sev. other works, e.g. H. H. Wilson's ed. of the *Rig-Veda-Saṁhitā*, and sev. in collaboration with others. See G. Cowell, *Life and Letters of Edward Byles Cowell*, 1904.

Cowen, **Sir Frederick Hymen** (1832-1935), Eng. musical conductor and composer. *b.* at Kingston, Jamaica. He studied under Benedict and Goss, and at Leipzig and Berlin, and his works include oratorios, operas, symphonies, cantatas, overtures, and the settings of over two hundred songs. He was appointed conductor to the Philharmonic Society in 1888, and held many important appointments as conductor. Among his chief works are *Rose Maiden*, cantata (1870); *Ruth*, oratorio (1887); *Thorggrim*, opera (1890); *Harold*, opera (1895); *Ode to the Passions* (1898); *Coronation Ode* (1902); *John Gilpin*, cantata (1904); *Suite of English Dances* (1905); *The Veil* (the last of his large-scale compositions) (1910); *My Art and My Friends* (1913); *Language of Flowers*, 2nd suite (1914); *Cupid's Conspiracy*, ballet (1916); *Monica's Blue Boy* (1917); and *Twelve Songs of my Little Ones*, from 'Punch' (1927). His ballads *The Better Land* and *The Children's Home* won great popularity.

Cowes, seaport and watering-place in Isle of Wight, England, on the N. coast at the estuary of the R. Medina, 104 m. S.E. of Southampton and 8½ m. S.W. of Portsmouth. It stands in a picturesque

situation on a hillside. At Egypt Point, the angle formed by the riv. and the sea, is a battery. C. is the headquarters of the Royal Yacht Club and the seat of its ann. regatta. There are engineering, ropery, and sail-making works. Dr. Arnold, the headmaster of Rugby, was *b.* here in 1795. Pop. 10,000. E. C., a distinct municipality, is on the opposite side of the Medina; it also has boat-building yards. Osborne House was built in 1845 by Queen Victoria. E. C. Castle and Norris Castle are also noteworthy. Pop. 4700.

Cowie, vil., Kincardineshire, Scotland; has coal-mines and a large fishing industry. Pop. 2500.

Cowlairs, N. suburb of Glasgow, with large railway works.

Cowles, **Henry Chandler** (1869-1937), Amer. botanist; *b.* at Kensington, Connecticut; son of Henry Martyn C. Educated at Oberlin College (A.B., 1893) and Chicago Univ. Prof. of natural sciences at Gates College, Nebraska, 1894-95, and later, of botany at Chicago Univ. Works: *Vegetation of Sand Dunes of Lake Michigan* (1899); *Plant Societies of Chicago* (1901); *Text-book of Plant Ecology* (1911), and, *Plant Societies of Chicago and Vicinity* (1913).

Cowley, **Abraham** (1618-67), Eng. poet and essayist. *b.* in London; educated at Westminster and Trinity College, Cambridge. While still at school he pub. a vol. of poems, *Poetical Blossoms* (1633), and wrote *Lee's Riddle* (1638), a pastoral comedy, and in the same year issued *Naufraquum Joviale*. He was elected from the univ. as a royalist by the parliamentarians in 1643, and removed to St. John's College, Oxford, where he pub. a satire, *The Puritan and the Papist* (1643). In 1646, at the surrender of Oxford, he obtained a confidential appointment in the royal household, going to Paris with the queen and dealing with the cipher correspondence between her and the king. He remained abroad for about ten years, being secretary to Lord Jermyn (the earl of St. Albans), and travelling to Jersey, Scotland, Flanders, Holland, etc., on royalist missions. In 1647 he pub. *The Mistress*, a series of poems in the most exaggerated style of the metaphysical school, and on returning to England in 1656 issued a book of poems containing *Miscellanies*, *The Mistress*, *Pindarique Odes*, and *Daridicis*, the last an epic which had been largely composed at Cambridge. In 1657 he took the degree of doctor of physics at Oxford. After the death of Cromwell he returned to France as secretary to the royal family, and at the Restoration, being apparently disappointed at not receiving a greater reward for his loyalty than a lease of some of the queen's lands, retired to the country, living first at Barn Elms and then at Chertsey. He is buried in Westminster Abbey. His other works include five books on plants in Lat. (1662, 1668, 1678); a comedy, *Cutler of Coleman Street* (1641); in prose, *A Proposition for the Advancement of Experimental Philosophy* (1661); a discourse on the gov. of Cromwell; and some delightfully clear

and pleasant essays. The beauties of his poems are spoilt by false taste and affected wit. See Sir E. Gosse, *Seventeenth-century Studies*, 1883; R. Schafer, *The English Ode*, 1913; and A. H. Nethercot, *Abraham Cowley: the Muse's Hannibal*, 1931.

Cowley, Mrs. Hannah (1743-1809), Eng. dramatic writer, b. at Tiverton, her maiden name being Parkhouse. In 1768 she married Capt. C. of the E. India Company, who d. in 1797. Her two most successful comedies were *The Runaway* (1776) and *The Belle's Stratagem* (1780), and she also produced sev. other popular plays and some poems, including *The Maid of Arragon* (1780); *The Scottish Village or Picaresque Green* (1786), and *The Siege of Acre* (1799, 1801). Her collected works, in 3 vols., 8vo, with memoir, appeared in 1813.

Cowley, Henry Richard Charles Wellesley, first Earl (1808-84), Eng. diplomatist. From 1852 to 1867 he was ambas. at Paris, and exercised great influence in the relations between France and England, helping Clarendon to promote the Declaration of Paris, 1856, and Cobden to carry through his commercial treaty between France and England.

Cow Parsley, or *Charophyllum sylvestre*, umbelliferous plant, often called wild chervil.

Cowpen, part of Blyth urb. dist., Northumberland, with coal-mines.

Cowpens, tn., Spartanburg co., S. Carolina, U.S.A., 2 m. S. of the N. Carolina boundary. It is famous for the battle, during the War of Independence, in which the Amer. general Morgan defeated the Brit. under Tarleton (1781). Pop. 1100.

Cowper, Edward (1790-1852), Eng. engineer and inventor who in 1827, with his brother-in-law, Applegarth, invented the four-cylinder machine, which was in general use for the printing of newspapers for many years.

Cowper, William, first Earl (c. 1665-1723), Eng. statesman, son of Sir Wm. C., M.P. In 1707 he became the first lord chancellor of Great Britain. He presided at the trial of Sacheverell in 1710, but resigned his office on the fall of the Whig ministry in the same year. George I. reappointed him lord chancellor, and as such he presided at the trial of the rebels of 1715. See Lord J. C. Campbell, *Lives of the Lord Chancellors*, 1815-69.

Cowper, William (1666-1709), Eng. surgeon and anatomist, b. at Petersfield, in Hampshire. He was admitted a barber-surgeon in 1682, and pub. *Myolomia Reformata* (1694), a treatise on the muscles, and *The Anatomy of the Human Body* (1698). His most valuable discovery in anatomy was C.'s glands (g.r.).

Cowper, William (1731-1800), Eng. poet, b. at the rectory of Great Berkhampstead, Hertfordshire, of which vil. his father, John C., was the rector. His mother d. when he was very young, and he was sent at the age of ten to Westminster School, having been removed from his previous school on account of the cruel treatment he had sustained from another boy. At Westminster his impressions were also somewhat painful, and from his

youthful experiences he developed a hatred of public schools which he retained all his life. He had here Warren Hastings and the satirist Churchill as fellow pupils. Shortly after leaving school C. was articled to an attorney named Chapman, but he never showed any intention of practising, though he was called to the Bar in 1754. Though he almost entirely neglected his professional work, his time was not being wasted. He was reading and writing, and, with his brother, trans. part of Voltaire's *Henriade*. He also belonged to the Non-sense Club, and fell in love with his cousin Theodora, daughter of Ashley C. The feeling was reciprocated, but the poet never had the energy



WILLIAM COWPER

to overcome his uncle's objections to the match. Meanwhile he was expecting the influence of his family to secure him some useful gov. post where the position was a sinecure, and this occurred in 1763. His cousin, Maj. C., offered him the post of clerk to the journals of the House of Lords, and he accepted it in preference to a more important post which was also vacant. Before he could take up his position, however, he had to undergo a so-called examination as to his fitness, which really amounted to no more than an appearance before the Bar of the House. C., however, who had already been somewhat given to fits of depression, grew so nervous at the prospect of this appearance that he finally attempted to commit suicide. Fortunately his courage failed him. His mind now gave way, and he was visited with terrible religious despair, describing himself as 'damned below Judas.' In this condition he was removed (Dec. 1763) to a private asylum at St. Albans, where he gradually recovered his equilibrium. In 1765 he wandered to Huntingdon, where he became acquainted with the Unwins, at whose house he soon came to reside. They were an amiable

and religious family, and after the death of Mr. Unwin, C. continued to reside with his widow. In 1767 he removed with her to Olney, where he came under the influence of John Newton, curate of the vil. Under this stimulus the poet gave himself up entirely to piety and good works, though too energetically for his health. It is from this period, at the suggestion of Mrs. Unwin, that the real commencement of C.'s poetic life must be dated. In 1773 his failing health again gave way, and a burst of madness ensued, which clouded his brain for three years. In 1779, three years after his recovery, appeared the *Olney Hymns*, written by him in conjunction with Newton. His next vol., consisting of secular verse, appeared in 1782, and contained *Table Talk*, *The Progress of Error*, *Truth*, *Expostulation*, etc. Much of this was the outcome of a new friendship which he had just formed. In 1781 he had begun an acquaintance with Lady Austen, a widow who had lately fixed her residence at Olney. She it was who told C. the tale of John Gilpin, upon which his popular fame so largely rests. Lady Austen then suggested that he should write blank verse, and carelessly pointed to a sofa as a theme. This suggestion was the inspiration of *The Task*, which appeared in six books in 1785. But the year before had seen the end of this fertile friendship, perhaps because of Mrs. Unwin's jealousy of Lady Austen's influence. In 1786 Lady Hesketh, sister of Theodora C., came to visit them at Olney, and persuaded them to move to Weston Underwood in 1787. In 1787 came another six months' insanity, during which the poet again attempted suicide. In 1791 appeared a trans. of Homer into blank verse which he had started in 1784, and a projected ed. of Milton brought him into touch with the famous Hayley. In 1794 came a final attack of insanity, from which he never entirely recovered. His cousin, John Johnson, took him to Norfolk with Mrs. Unwin, who d. at E. Dereham. The poet lingered on for four more years, dying on April 25, 1800. He is buried near Mrs. Unwin in E. Dereham church. C. may justly be described as the herald of the Romantic movement. In him were gathered up and concentrated all the gleams which had shone disconnectedly in Thomson, Gray, Lady Winchelsea, and the novelists. Though not one of the greatest poets of the country, his work is important both intrinsically and historically. He possessed equal merit as a letter-writer. See W. Hayley, *Life and Posthumous Writings*, 1803-4, and *Life and Letters*, 1809; G. Smith, *Cowper*, 1880; T. Wright, *The Life of William Cowper*, 1892; *Correspondence*, 1904, and *Unpublished and Uncollected Letters*, 1925; H. I. A. Fausset, *William Cowper*, 1928; Lord D. Cecil, *The Stricken Deer*, 1929; and T. Gilbert, *William Cowper and the Eighteenth Century*, 1935.

Cowper (afterwards **Cowper-Temple**), **William Francis** (1811-88), second son of the fifth Earl C. and Emily Mary, sister of Viscount Melbourne. Took a prominent part in the movement to prevent the

enclosure of common lands, and in 1867 was elected first president of the Commons Preservation Society. Became chairman of the Select Committee on the Enclosure Acts in 1869, when his activities were successful in stopping the enclosure of Epping Forest. His name is chiefly associated with the Cowper-Temple clause (q.v.) of the Education Bill, 1870.



Cowper's Glands, pair of small bodies, about the size of a pea, situated in the male just below the apex of the prostate and between the two layers of the triangular ligament. They correspond to Bartholin's glands in the female.

Cowper-Temple Clause. The principle underlying this clause of the Education Act, 1870, which was incorporated on the amendment of Sir (then Mr.) Wm. Cowper-Temple (q.v.), on the second reading of the Bill, introduced by Mr. Arnold-Forster, lies at the root of the whole of the bitter controversies that have raged round the education question during the last half-century or more. From the moment public elementary schools were estab. it became clear that rate-payers generally had a right to demand the exclusion from such schools of the teaching of any catechism or formula distinctive of any individual denominational creed. The C. C. was designed to effect that exclusion, but applied only to a public elementary school. On the advice of the law officers of the Crown, the Board of Education decided that the teaching of the Apostles' Creed, the Lord's Prayer, and the Ten Commandments is not a contravention of the clause, but that the teaching of that part of the catechism known as the Duties is a contravention. The whole question of religious instruction in schools was revived in 1897 when voluntary schools received a grant in aid, and, still more acutely in 1902, when the Education Act of that year made such schools rate-aided. See **EDUCATION**.

Cowra, tn. in Australia, Forbes co., in New S. Wales, on the r. b. of the Lachlan R., and 220 m. W. of Sydney. It is 60 m.

S.W. of Bathurst; has gold, silver, copper, and marble in the neighbourhood. Pop. 4000.

Cowrie Pine, see KAURI.

Cowry, name applied to the shell of any of the gastropod molluscs in the family Cypræidae. The shells of *Cypræa moneta* are gathered in India, and used whole in Africa in place of money; are very common in England as counters.

Cowslip, or *Primula veris*, a species of Primulaceæ. The common Eng. variety is a bright yellow herbaceous perennial. The flowers are terminal, rising on scapes, stalking in closely umbellate form. The corolla is gamopetalous and tubular below; the stamens are adnate to the corolla.

Cow-wheat, or *Melampyrum*, genus of the natural order Scrophulariaceæ, consists of plants which are parasitic on roots. It is said to be good for cattle, and especially fattening for cows. There are sev. varieties, among which are the *M. arvense*, growing in the cornfields of the S. of England, sometimes called purple C.

Cox, David (1793-1859), Eng. landscape painter, who in 1813 joined the Society of Painters in Water Colours, and in 1814 pub. *A Treatise on Landscape Painting*. In 1839 he turned his attention to oils, but his oil-paintings, although masterly, are not so well known as his water-colours. It is impossible to rank C. among the greatest artists, even in water-colours, but at his best he was nevertheless a very good one. He made a highly individual contribution to the development of Eng. landscape painting and, in particular, was unequalled as an interpreter of windy, cloudy skies and of rainstorms beating down on open commons. His drawings are still procurable at modest prices, though rapidly rising in the esteem of collectors, and at his best he was second only to Constable and de Wint. Among his most famous pictures are 'Peace and War' (1816), sold for £20 by C., and for £3601 in 1872; 'The Hayfield' in 1875 was sold for £2950, the largest sum paid for a water-colour up to that date; 'The Vale of Clwyd' (1846); 'Bolton Abbey' (1847). C.'s favourite scenery was in N. Wales, especially around Bettws-y-Coed. See W. Hall, *Biography*, 1881; R. and S. Redgrave, *Century of Painting*, 1893; and T. Cox, *David Cox*, 1918.

Cox, Sir George William (1823-1902), Eng. divine and mythologist. b. at Benares, India, and educated at Rugby and Trinity College, Oxford. He pub. *The Mythology of the Aryan Nations* (1870); *Popular Romances of the Middle Ages* (1871); *A General History of Greece to the Death of Alexander the Great* (1876); *History of the Establishment of British Rule in India*, and *An Introduction to the Science of Comparative Mythology and Folklore* (1881); and *A Concise History of England and the English People* (1887).

Cox, Gonzales, see COATES.

Cox, Jacob Dolson (1828-1900). Amer. general, b. in Montreal, Canada; graduated at Oberlin, 1851; admitted to the Ohio Bar in 1853, and was elected to the state Senate, 1859. He took part as a brigadier-general, U.S.A., in the W. Virginia cam-

paign of 1861, and in many campaigns during the war. He was governor of Ohio, 1866-67, was a representative to Congress 1877-99, and president of the univ. of Cincinnati, 1885-89. A great authority on military hist. His *Military Reminiscences of the Civil War* was pub. posthumously (1900).

Cox, Sir Percy Zachariah (1864-1937), Brit. administrator. Educated at Harrow and Sandhurst and began his career in the army, serving in the Cameronians till 1889, when he joined the Indian staff corps. Later he became vice-consul at Zeila, Somali coast, and filled other consular posts at Berbera, 1894-95, at Muscat, 1899-1901, and at Bushire, 1904. He then became political resident for the Persian Gulf, and in 1914 secretary for the dept. of India there, and when the First World War began, chief political officer for the Indian expeditionary force. He was acting minister to Persia in 1919-1920, and closed his career by becoming Iraq's first high commissioner, which post he held for five years. President of the Royal Geographical Society, 1933. See also IRAQ.

Cox, Samuel (1826-93), Eng. non-conformist divine and writer. b. in London. He was appointed president of the Baptist Association in 1873. C. was the founder and editor (1875-84) of the *Expositor*, and the first twenty vols. are nearly all his work. He pub. numerous theological works, the best known of which are *Salvator Mundi* (1877); *A Commentary on the Book of Job* (1880); and *The Larger Hope* (1883).

Coxie, Michael, see COXIE.

Coxe, Henry Octavius (1811-81), Eng. librarian and scholar. b. at Bucklebury, Berkshire. In 1860 he became head librarian of the Bodleian, Oxford. His reputation as a paleographer induced the gov. to send him to the Levant in search of anc. MSS. in 1857, but his quest was unsuccessful, though he detected the forgery attempted by Constantine Simonides. He pub. *Rogeri de Wendover Chronica* (1841-44, 5 vols.) for the Eng. Historical Society; *The Black Prince* (1842); an historical poem written in Fr. by Chandos Herald; Gower's *Vox Clamantis* (1850); and a *Report on the Greek Manuscripts yet remaining in the Libraries of the Levant* (1858). Under his direction the catalogue of the Bodleian in over 720 vols. was completed, and he was the compiler of *Catalogue of Greek MSS. at the Bodleian* (1852-54). See J. W. Burgon, *Twelve Good Men*, 1888.

Coxe, William (1747-1828), Eng. writer of hist. and travels, educated at Eton and Cambridge. He travelled largely on the Continent, once as tutor to the marquis of Blandford and another time as companion to Lord Herbert. D., a prebendary of Salisbury and archdeacon of Wiltshire, at Bemerton rectory. His works include *Travels into Poland, Russia, Sweden, and Denmark* (1784-1790); *Travels in Switzerland* (1789); *Memoirs of the Life and Administration of Sir Robert Walpole* (1798); *History of the House of Austria, 1218 to 1793* (1807);

Memoirs of the Kings of Spain of the House of Bourbon, 1700 to 1788 (1813); and *Memoirs of John, Duke of Marlborough* (1818-19).

Coxie, or Coxle, Michael (1494-1592), Flemish painter, *b.* at Mechlin; studied under van Orley and later at Rome, where he was a great admirer of Raphael, on whose works he based the style of his own. His chief works include 'St. Sebastian' and 'The Triumph of Christ,' both in the Antwerp Gallery; another 'St. Sebastian' in Mechlin Cathedral; and a copy of van Eyck's 'Adoration of the Lamb,' which he executed for Philip II. of Spain, and which is considered his best work. He *d.* at Antwerp.

Coxwell, Henry Tracy (1819-1900), Eng. aeronaut, *b.* at Woudham, near Rochester. He was destined for the army, but became a dentist. In 1844 he made his first balloon ascent and became a professional aeronaut in 1848, giving numerous exhibitions in England and on the Continent. In 1862 with James Glaisher he attained the greatest height on record, 7 m., and added some valuable observations to the science of meteorology. He managed the war balloons for the Gers. during the Franco-Prussian war of 1870. He founded and ed. the *Balloon* in 1845. C. made his last ascent in 1885. He wrote *My Life and Balloon Experiences* (1887).

Coyote, Prairie Wolf, or *Canis latrans*, wolf-like member of the dog family Canidae which inhabits N. America. The fur is long and thick, and the animal has a dirty yellow colour. Its mournful howling in the night is an unwelcome sound to lonely travellers.

Coyote State, see SOUTH DAKOTA.

Coytel, name of four Fr. painters:

Noël Coypel (1628-1707), *b.* at Paris; employed on the decoration of the Louvre in 1655; became an academicien in 1659; became director of the Fr. Academy at Rome in 1672. Returning to Paris later, he executed paintings at the Tuileries and the vault of the Church des Invalides.

Antoine Coypel (1661-1722), son of Noël, *b.* at Paris; studied under his father at Rome, and returning to Paris was very popular, decorating sev. royal palaces, and becoming prin. painter to the king in 1715.

Noël Nicholas Coypel (1688-1734), son of Noël, *b.* at Paris; became an academicien at twenty-eight. He had a considerable contemporary reputation as a historical painter, which has now diminished.

Charles Antoine Coypel (1694-1752), son of Antoine, succeeded his father in the king's household. Noted for his pastel work and twenty-five scenes from the life of Don Quixote.

Coyu, popular name of a species and genus of rodent in the family Actodontidae. The technical name of this S. Amer. creature is *Myocastor* (or *Myopotamus*) C., and in habit and appearance it resembles a large water rat. Its maximum length is about 2 ft., its general colour a brownish-red, and the edges of the lips and muzzle are whitish. It has short limbs, small ears, a long naked tail,

and the hind feet are webbed. The fur (nutria) is used for coats, and the flesh is sometimes eaten. The diet of the C. is principally vegetarian.

Coysevox, Antoine (1640-1720), Fr. sculptor, *b.* at Lyons, of a Sp. family; studied in Paris under Loranbert, and produced a statue of the Virgin before he was seventeen. In 1667 he went to Alsace to decorate the palace of Cardinal Fürstenberg, which occupied him for four years. On returning to Paris he executed two statues of Louis XIV., one being an equestrian figure commissioned by the prov. of Bretagne. He became very famous, and was admitted into the Academy in 1676, later becoming chancellor of that body. Among his chief works are the tombs of Cardinal Mazarin and of Colbert, in St. Eustache; the monument of Charles le Brun in St. Nicholas; the statue of Conde and that of Louis XIV. in Notre Dame; the two-winged horses in marble surmounted by Fame and Mercury placed one on each side of the entrance to the garden of the Tuileries from the Place de la Concorde; and sev. statues in the gardens of Marly and Versailles. His bust by Lemoine is in the Musée des Monuments Français. *See* life by G. Keller-Dorian, 1920.

Cozens, Alexander (d. 1786), landscape painter, *b.* in Russia, a natural son of Peter the Great and a woman from Deptford. He was sent to Italy to study painting, and from there went to England and settled there in 1746. From 1760 to 1781 he exhibited many pictures and some of them at the Royal Academy. During this period, however, he spent much time in teaching, and was from 1763 to 1768 drawing master at Eton. Many of his earlier works in colour, pen and ink, and pencil are in the Brit. Museum. He was the author of sev. works and articles on art.

Cozens, John Robert (1752-99), landscape painter in water-colours, was the son of Alexander C., and was *b.* in England. It has been said that he was 'the greatest genius who ever painted a landscape,' but he is undoubtedly the greatest landscape painter before Turner. He was first instructed in painting by his father. In 1776 he went to Switzerland with R. Payne Knight, and returned to England in 1782; in 1783 he went to Italy with Wm. Beckford. He first exhibited at the Incorporated Society of Brit. Artists in 1767, and he made some beautiful sketches of the trees in Windsor Forest. In 1794 he became insane. Many of his works are to be found in the print room at the Brit. Museum; they are noted for their delicacy and their beautiful colouring, and they certainly influenced Turner and Girtin. Constable said that 'the works of Cozens were all poetry.'

Crab, Roger (c. 1621-80), Eng. hermit, *b.* in Buckinghamshire. From 1642 to 1649 he served in the parli. army and was wounded in the head. In 1651 he sold off his business in Chesham as a 'haberdasher of hate,' and built himself a hut where he retired and practised great aus-

terities. He gained a reputation as a 'witch,' and suffered great persecutions, being imprisoned, cudgelled, and put in the stocks. He pub. *The English Hermit* (1655); *Dagon's Downfall* (1682); and tracts against the Quakers. See R. Chambers, *The Book of Days*, 1862-64.

Crab, name applied to various mechanical weight-lifting contrivances, including an engine with three claws used in the launching and docking of ships, a portable windlass used in building and in loading and unloading operations, and a kind of pillar used as a capstan.

Crab, popular term applied to numerous species of decapod crustaceans, properly only to those in the div. Brachyura, but also commonly to others included in the Anomura. The true Cs. have short antennae, eyes which can be retracted into sockets, a short tail which is tucked up under the cephalothorax, a compressed body covered by a hard carapace, two large anterior claws curved closely round the carapace, and these are usually larger in the male than in the female. In diet they are carnivorous, and will feed on carrion or on living matter; a few species sometimes vary their food with vegetables. Nearly all of the Cs. are marine, but there exist also land Cs., which would drown if kept in water; some are so tiny that they will hide in disused shells, and others have a fondness for burrowing in sand and mud. Many of the males are pugnacious, and will fight bitterly with an opponent; some are capable of casting a claw in self-preservation, and all are able to regenerate a missing limb. In intelligence they rank probably highest of the crustaceans. The hermit or soldier Cs. are anomurous, and are characterised by having a fleshy, spirally twisted abdomen, usually covered over by an empty gastropod shell; they are united in the tribe Paguridea, of which the genus *Pagurus* is typical. The species in the tribe Galatheidæ are symmetrical in shape, and the young are noted for the length of the spines on the carapace; the species and genus, *Egla laris*, is found in fresh-water streams of S. America. The tribe Hippidea comprises the sand or mole Cs., and *Hippa crenata* burrows in the sand. The brachyurous species are divided into five tribes: (1) Brachyura Anomala, Notopoda or Dromæa, of which *Dromia vulgaris* is a common Brit. representative; (2) Oxystomata, in which are found the genera *Dorippe* and *Cymonimus*; (3) Oxyrhyncha, which contains spider Cs. and others, e.g. *Maja*; (4) Catometopa, in which occurs *Sesarma pisoni*, a climbing and air-breathing species, and also the calling-C. genus *Gelasimus*, whose members have one claw larger than the others, and this is borne in a hooking manner; (5) Cyclometopa, to which belongs *Cancer pagurus*, the large edible C. seen in markets, *Carcinus maenas*, the common shore-C. of Britain, *Portunus puber*, the velvet or devil C., and *Corystes cassideatus*, the masked C., a curious species bearing on its carapace marking as of a human face. See also KING-CRAB.

Crab-apple, or *Pyrus malus*, member of

the family Rosaceæ, is a wild apple of which there are many varieties. The fruit of the wild varieties found in Britain in hedges is not sweet nor pleasant to the taste, and is chiefly used in jellies and preserves. It is the origin of the garden apple, but entirely lacks the flavour that cultivation has produced. The Amer. C., *Malus coronaria*, is sweet, and grows on a small tree in Columbia. The flowers are very beautiful, and the fruit, which hangs on long stems, is used for making sauces. The smallest variety is the Oregon C. found in California, not much larger than a hawthorn berry.

Crabbe, George (1751-1832), poet, the son of a schoolmaster and par. clerk, who settled at Aldeborough, had but a very rudimentary education, but by his devotion to his books soon conquered this defect. Destined for the medical profession, he served as apprentice, first to a doctor at Wickham Brook, and presently to another at Woodbridge, in which latter place he first met his future wife, Sarah Elmy, the Mira of his poems. He now began to write verse, and, in 1780, with a borrowed five-pound note and some MSS., went to London to seek fame and fortune. He found the metropolis a cold-hearted stepmother, and he was at the end of his tether, when, having failed to secure a hearing elsewhere, he sent *The Candidate* to Burke. Burke read it, saw its merits, and induced Dodsley to publish it in 1780. At Burke's suggestion he took orders, and, after a term as a curate, was in 1782 appointed chaplain to the duke of Rutland. In the following year *The Village* appeared, and three years later C. pub. *The Newspaper*, after which, though he wrote—and destroyed—diligently, he remained silent for more than a score of years. In 1807 he broke his long silence by the pub. of *The Parish Register*, and this work he followed three years later with *The Borough*. He paid a visit to London in 1817, and was everywhere received as the distinguished man of letters he was. Two years later he pub. his last great work, *Tales of the Hall*, for which John Murray gave him £3000. He d. in 1832 at Trowbridge, where the living had in 1813 been given to him by the duke of Rutland. A monument to his memory has been erected in Trowbridge church. Much of his work was in a way a protest against the pastoral poetry in the style of *Sweet Auburn*. It was his endeavour to paint nature as it was, and in this he succeeded greatly. His complete works were ed., with a life, in 8 vols. by his son George (1834), and his poetical works by A. J. and H. M. Carlyle (1908, 1914). See T. E. Kobbel, *The Life of George Crabbe*, 1888; A. C. Ainger, *Crabbe*, 1903; R. Huchon, *Un Poète réaliste anglais, George Crabbe, 1754-1832* (with bibliography), 1906 (Eng. trans. by F. Clarke, 1907); J. W. Holme, *The Treatment of Nature in Crabbe*, 1912; J. H. Evans, *The Poems of George Crabbe: a Literary and Historical Study*, 1933; and *The Life of George Crabbe*, by his son (with introduction by Edmund Blunden), republished 1947.

Crab, The, *see* **CANCER, OR THE CRAB**.
Cracidae, or **Cracinae**, family of birds belonging to the order Galliformes, sub-order Gall. They are found through Central and S. America, where they inhabit forests within reach of the coast or wooded hills near rivers. They live on leaves and fruit. The nests are carelessly constructed on the level branch of a tree or bush. The *C. vary* in colour from black to blackish-green. The *Penelopinae* are brown or olive-green in colour and number fifteen species. The *Oreophasinae* contains only the Guatemala pheasant, a splendid bird with soft greenish-black plumage, brown at the side and below. The feet are vermilion.

are buried, and which contains Thorwaldsen's statue of Christ; the univ., next to Prague the oldest in central Europe, having been founded in 1364 by Casimir the Great, and reorganised in 1817, and which has fine new buildings in the W. part of the city, including a library of 350,000 vols., a botanic garden, and an observatory; the recently restored Cloth Hall, in Ring Square, which contains the Polish National Museum; the Episcopal Palace; the Royal Academy of Sciences; and the Czartoryski Museum. About 3 m. to the W. of the city is a grassy tumulus over 100 ft. high, which was raised in 1820-23 in commemoration of the patriot Kosciuszko. Another mound has been



CRACOW

The Vistula, with the cathedral of St. Stanislaus and the old royal castle in background

Cracinae, *see* **CURASSON**.
Cracovienne (**Krakowiaki**), national dance of the Polish peasantry in the dist. round Cracow. It has a strongly marked rhythm in 3 time, and is frequently accompanied by singing.

Cracow, or **Krakow** (Polish **Kraków**, Lat. **Cracovia**), tn. and prov. of Poland, on l. b. of R. Vistula, 158 m. S.W. of Warsaw. It occupies an important strategical position, 672 ft. above sea level, in a wide plain commanding the river approach to Silesia and to the Danube valley via the Moravian Gate. The city may be divided into the old tn., with promenades formed on the old walls; the castle quarter, lying to the S.; and the suburbs, including the former Jewish Kasimierz quarter and Podgorz, on the other side of the river, with which it is connected by a bridge built in 1850. *C.* is a very picturesque tn. and contains many interesting buildings. Among them are the castle, on the Wawel Rock, long the residence of the kings of Poland; the Gothic cathedral (1320-59), adjoining the castle, where many of the kings and famous men of Poland, including John Sobieski, Poniatowski, and Kosciuszko,

piled up in memory of the legendary Krak, or Krakus, a Slavonic prince, who is said to have founded the city about 700, and to have given it its name. It is more probable, however, that the name is derived from the Slavonic *krak*, a raven. There are manufs. of cloth, leather, machinery, agric. implements, chemicals, beer, tobacco, etc. *C.* was the cap. of the kingdom of Poland from 1320 to 1609, when Warsaw became the seat of government. *C.* remaining the coronation city for a century and a half longer. The third partition of Poland in 1795 assigned *C.* to Austria. From 1809 to 1815 it was part of the duchy of Warsaw, and during 1815-46 was the cap. of the republic of *C.* This, forming the last stronghold of Polish independence, comprised a ter. of 445 sq. m. After a rebellion it was re-annexed to Austria in Dec. 1846. During the First World War much fighting took place round *C.* in the latter months of 1914. In Sept. of that year there were indications that the Russians under the Grand Duke Nicholas would endeavour to enter Germany via Moravia, and the Central Powers made plans to counter this move. In their retreat before the Russian 'steam-

roller' both Ger. and Austro-Hungarian troops in this region concentrated upon C., the capture of which was essential to the Russian plan of invading Germany. During the last weeks of Nov. the Russians made persistent efforts to break the line between Lodz and C., but failed, and at the latter place the Austrian forces gallantly held their own and foiled all Russian onslaughts. In 1917 there were riots in C., as in other important tns. of the constituent countries of the dual monarchy, organised by agitators against the oppression of subject nationalities. On Sept. 1, 1939, C., together with many other Polish cities, was bombed by the Gers, simultaneously with their general attack on Poland. C. fell to the Gers, on Sept. 6, 1939. It was the cap. of the so-called general gov., and Frank (*q.v.*), the governor, later tried at Nuremberg, had his headquarters in Wawel Castle. It was recaptured by Russian troops on Jan. 14-16, 1945 (see EASTERN FRONT; RUSSO-GERMAN CAMPAIGNS IN SECOND WORLD WAR). Up till the Ger invasion C. remained the great centre of Polish national life. Mean temp. of the year 45.7 F.; winter, 26° F.; summer, 65.5 F.; Mean ann. rainfall, 24.8 in. Pop. 299,300.

Craddock, Charles Egbert, see MURREE, MARY NOBLE.

Cradley, par. and tn. Worcestershire, England, 3½ m. S. of Dudley, with coal- and iron-mines and manufs. of iron and steel goods. Pop. 7600.

Cradling, term used in architecture to designate a slight framework of timber built under floors to form curved ceilings.

Craddock, Rear-Admiral Sir Christopher (1862-1912), Brit. sailor. He commanded the cruiser squadron at the battle of Coronel (*q.v.*), Nov. 1, 1914, which was sunk by the Ger. squadron under Adm. von Spee, C. going down in his flagship the *Monmouth*. C. was b. at Hartforth in Yorkshire and entered the navy in 1875. His first active service was in the 1884 Egyptian campaign, and he was also in the 1891 campaign in the Sudan. In the 1900 China campaign he commanded the Naval Brigade. His gallantry and fearlessness were proverbial in the navy. Promoted captain in 1900 and rear-admiral in 1910. There is a memorial to him in York Minster. He was a writer on naval subjects.

Craddock, tn. and dist. in Cape Prov., S. Africa, 56 m. S.S.E. of Middelburg. Altitude 2850 ft. The pop. of the dist. is 18,380, of whom 5960 are white and occupied in cattle raising. Pop. of tn. 9550, of whom 3980 are white.

Crafers, tn., S. Australia, 21 m. S.E. of Adelaide; nearest station Mount Lofly. The dist. is famous for fruit growing. Pop. 2000.

Crafton, bor. in Allegheny co., Pennsylvania, U.S.A. Pop. 7500.

Crag, term applied in geology to the uppermost of the Tertiary strata in England. It is a shelly sand occurring in E. Anglia, being the only example of a Pliocene stratum. The C. strata consist of the following members, beginning with the uppermost: (1) The Forest Bed series,

containing many animal and plant remains; (2) the Chillesford beds, containing a molluscan fauna; (3) the Norwich C., containing both marine and freshwater shells; (4) the Red C., being a subcalcareous sand rich in shells; (5) the White or Coralline C., being a calcareous mass with argillaceous bands containing Mollusca and Bryozoa. The term C. is taken from the local name for shelly sand.

Crag and Tail, term applied to a peculiar formation of hills in which one side forms a steep and precipitous cliff, while the other 'tails' away in a gentle slope. This is due to glacial action on rocks of varying hardness, the harder rocks (generally igneous, such as dolerite or basalt) having resisted denudation and so protecting the softer rocks on the lee side. The 'crag' thus generally faces the direction from which the ice came, while the 'tail' faces the direction in which it was advancing. The phenomenon is very prevalent in the lowlands of Scotland and especially round Edinburgh; the Castle Rock of Edinburgh and the Abbey Craig of Stirling are two of the most famous examples of this formation.

Craig, Edward Gordon (b. 1872), theatrical designer and actor, b. near London, son of Ellen Terry (*q.v.*) and Edward Wm. Godwin, architect and archaeologist (1833-86). Educated at Bradford College and Heidelberg Univ., on leaving which in 1889 he adopted the name of Edward Gordon C., legalised by deed-poll Jan. 24, 1893. He made his debut under Sir Henry Irving at the Lyceum as Arthur St. Valery in the *Dead Heart*, and in the ensuing ten years took part in various plays of Shakespeare and in *Ravenswood*, *The Lyons Mail*, *School for Scandal*, etc., his best roles being Biondello, Cassio, Petruchio, and Charles Surface. His powers as a designer and producer were first shown in the production of Purcell's *Dido and Eneas* in 1900, and soon after this in *Isithlehem*, *Sword and Song*, *The Tinklers*—in which he made artistic innovations in scenery and costume, lighting and stage management—and in 1905 he prepared designs for Eleonora Duse for the production of *Elektra*. Memorable productions by him include those of *Hamlet*, at the Moscow Art Theatre in 1912, and of Ibsen's *The Pretenders*, at the State Theatre, Copenhagen, in 1920. The designs used in the latter were pub. in 1930, entitled *A Production*. C. also illustrated an ed. of *Hamlet*, pub. by the Cramach Press, Weimar, in 1930. In 1913 he founded a school for the art of the theatre at Florence. His ideas as a theatrical artist, as described in a series of pamphlets and papers collected and pub. under the title *On the Art of the Theatre*, have germinated, and, through E. Inghardt, Jessner, Stanislavsky, and the Russian ballet, have spread throughout the world. The essence of his theories as a practical producer is that the 'art of the theatre is neither acting nor the play, it is not the scene nor dance, but it consists of all the elements of which these things are composed,' and, as a philosopher, he wished the theatre to be

'a place in which the entire beauty of life can be unfolded, and not only the external beauty of the world, but the inner beauty and meaning of life.' The theatrical producers found it impossible to believe that he was anything more than a vague philosopher of an impossible theatre, but through his mother he had his chance in 1903 to reveal his genius; and the beauty of his production of *The Vikings and Murh-Ido*. About Nothing won the admiration of Wm. Rothenstein and Count Kessler even though, commercially, both were failures. Kessler wanted him to produce a play at Weimar for the grand duke, but his revolutionary theories were, in his own view, not likely to appeal to the actors there, and, instead, he went to the Lessing Theatre at Berlin and there produced Hoffmannstahl's version of *Venice Preserved*. Berlin recognised his genius: his shadowy settings with their soaring arches, their deceptive simplicity, and their perfect proportion filled Reinhardt and Jessner with ideas for their work and made possible the expressionism (*q.v.*) of the Ger. theatre of the twenties and such films as *The Cabinet of Dr. Caligari*. Exhibitions of C.'s designs toured Germany and Austria, and from that time his influence spread through central Europe.

C. is also celebrated as a wood-engraver, an art which he began to practise in 1893 at the instance of Wm. Nicholson, the artist. Some of his woodcuts are reproduced in *Woodcuts and some Words* (1924), and many originals are in the Victoria and Albert Museum. Books by C. include *The Art of the Theatre* (1905); *On the Art of the Theatre* (1911); *Towards a New Theatre* (1913) (contains plates of designs for Shakespeare, Ibsen, and other dramatists); *The Theatre Advancing* (1921); *Scene* (1923); *Books and Theatres* (1925); *Henry Irving* (1930); and *Ellen Terry and Her Secret Self* (1931). See E. Rose, *Gordon Craig and the Theatre*, 1931.

Craig, John (c. 1512-1600), Scottish reformer, educated at St. Andrews and became a monk. He was patronised by Cardinal Pole, and on his advice joined the Dominicans, becoming rector of their school at Bologna. He was converted to Protestantism by reading Calvin's *Institutes*, and having made open confession was tried by the Inquisition at Rome and condemned to be burnt to death. The day before his execution, however, Pope Paul IV. d., and the prison being broken open by a mob, he escaped and returned to Scotland about 1560, where he became one of the most popular preachers of the recently estab. Reformation. In 1574 he became minister of Aberdeen, in 1577 the colleague of John Knox at the par. church of Edinburgh, and in 1579 one of the chaplains of the household of James VI. In 1580 he drew up the *National Covenant*, and later compiled part of the *Second Book of Discipline*, and sev. treatises.

Craig, Sir Thomas (1538-1608), Scottish jurist, b. in Edinburgh; studied at St. Andrews Univ. and in Paris. His great work, *Jus Feudale*, completed in 1603, but only pub. in 1655, is still consulted, and he also wrote a treatise proving the

legality of James's right to the Eng. throne. See his life by P. F. Tytler, 1823.

Craigavon of Stormont, Sir James Craig, first Viscount (1871-1940), Irish soldier and statesman, son of James Craig of Craigavon, Down, N. Ireland; educated at Merchiston School, Edinburgh. Captain in old Royal Irish Rifles; served with Imperial Yeomanry and Irish Horse in S. African war (1899-1902). His election for Down (1906) to House of Commons at once placed him in the front rank of Ulster Unionists. When Sir Edward Carson assumed the leadership in Ulster, C. was his right-hand man in the fight for Ulster's integrity against Asquith's Home Rule Bill, and when Carson went to the House of Lords, C. took up the vacant leadership. He joined Mr. Lloyd George's Gov. in 1916 as treasurer of the household, but resigned in 1918 when Carson resigned from the War Cabinet. He was par. secretary to the minister of pensions, 1919-20, and then par. and financial secretary to the admiralty, 1920-21. In June 1921 he resigned his Eng. office on becoming first Prime Minister of N. Ireland—still retaining, though never availing himself of, his seat in the Brit. House of Commons, notwithstanding his peerage, Baronet, 1918. Viscount, 1927. The uncompromising champion of Ulster's membership of the Brit. Commonwealth, he presented an adamant front to all the efforts of Mr. de Valera to induce him to sacrifice the border. His speeches had none of the flamboyant oratory once associated with Irish politics, but were plain, unequivocal statements of policy. Frequently criticised by left-wing publicists and others in the United Kingdom, he held on his course utterly unmoved, cherishing no illusions on the score of Irish unity.

Craigie, Pearl Mary Teresa, see HOMES, JOHN OLIVER.

Craik, Mrs. (Dinah Maria Mulock) (1826-1887), best known as the author of *John Halifax, Gentleman*, was b. at Stoke-upon-Trent. She settled in London at twenty to write for the support of an invalid mother and two young brothers. Her first novel, *The Opilries* (1849), was followed by *Olire* (1850); *The Head of the Family* (1851); and *Agatha's Husband* (1853). *John Halifax, Gentleman* (1856) met with an immense success not only in England, but, through trans., in France, Germany, Italy, Greece, and Russia. A pension of £60 a year awarded to her she placed at the service of poor authors. Among her other works are *A Woman's Thoughts about Women* (1858); *Thirty Years, Poems, New and Old* (1881); *Concerning Men and Other Papers* (1888). See Louisa Parr, *The Author of 'John Halifax, Gentleman': a Memoir*, 1898; and A. J. Roade, *The Mellards and their Descendants*, 1915.

Crail, the Caryl of the ninth century, anct. seaport tn. of Scotland, in Fifeshire, 9 m. S.E. of St. Andrews. Its fishing industry has greatly declined, but it is now an attractive little summer resort with some interesting historical associations. Here John Knox preached his 'Idolatrous sermon', June 9, 1559.

Crailsheim (Krailsheim), tn. of Württemberg, Germany, on the Jagst, 13 m. N. of Ellwangen. Interesting architecture; tanning and weaving industries. Pop. 6400.

Craiova (Kraiova), chief tn. of Județ Dolj, Rumania, 120 m. W. of Bucharest, with many manufs., including (in 1910) belting, candles, soap, preserves, terra cotta. There are also flour mills. There are many churches and synagogues. It is the centre of the very fertile Oltenia dist. Pop. 65,000.

Crake, member of the family of the *Itallidae* (Rails), order of the *Gruiformes*. The best known Brit. C. is the corn-C., whose cry may be heard all over the country in the early summer. They are short-billed, thick-bodied birds. The colour is reddish-brown, lighter below, with dark brown streaks on the feathers above. The corn-C. is becoming rarer in England every year.

Cram, Ralph Adams (b. 1863), Amer. architect and author, b. at Hampton Falls, New Hampshire. Educated at Augusta (Maine) and Westford (Massachusetts) Academies, and Exeter (New Hampshire) High School. Practising architect since 1889, when he opened an office in Boston. As senior partner of C., Goodhue & Ferguson, he helped to design many notable buildings, e.g. Graduate College and Cleveland Tower, Princeton Univ.; the cathedrals of St. Alban, Toronto, and St. Paul, Detroit. He was made consulting architect for the great New York Cathedral of St. John the Divine—being an enthusiast for and an authority on Gothic. Among his books are *The Ruined Abbey of Great Britain* (1906); *The Gothic Quest* (1907); *The Substance of Gothic* (1916, Lowell lectures); *Walled Towns* (1919); and *Towards the Great Place* (1922).

Crambe Maritima, or *Sea-kail*, species of *Crucifera* found on Brit. coasts and cultivated in gardens for its delicate, tender shoots. The plant is glaucous and spreading, with broad, toothed, sinuated, fleshy leaves coated with wax, and dense corymbs of large white flowers.

Crambus (Gk. *κράμβος*, parched), genus of insects in the pyralid family Crambidae, the vaneers, or grass-moths, is well represented in Britain. The species are small and inconspicuous, and are to be found in grassy places.

Cramer, Gabriel (1701–52), Swiss mathematician, b. at Geneva. Until 1724 he held the chair of mathematics in the univ. of Geneva jointly with Calandrin. He wrote *Introduction à l'analyse des lignes courbes algébriques*, and ed. the works of Johann Bernoulli and the *Commercium epistolicum* of Leibnitz and Bernoulli.

Cramer, Johann Baptist (1771–1858), Ger. pianist, one of a family of musicians, the most famous of the three sons of Wilhelm C. (1745–99), himself a musician settled in London. His compositions are no longer valued, but his *Hundred Daily Exercises* has become classic and is still reprinted. He founded the music publishing firm which bears his name.

Cramlington, tn. of Northumberland, England, 8 m. N.N.E. of Newcastle; coal-mining industry. Pop. 8500.

Cramp, spasmodic, painful, and sustained contraction of a muscle or group of muscles. It may affect a limb, or internal muscles, when the sensation is particularly discomforting. There is often no observable cause, though cold, fatigue, or a constrained position may bring on painful cramping. The muscles most often affected are those of the calf and the back of the thigh, and persons of gouty tendencies are specially liable. The muscles suddenly bunch themselves into a hard knot, and are best made to relax by rubbing or stretching; when the calf is cramped, for instance, the foot should be bent upwards with the hand as far as possible.

Bathers' cramp is obscure in its nature. Many bathers know the sudden cramping of the limbs due to fatigue or too long immersion in cold water, but the affection which suddenly renders helpless the most capable swimmer has more severe than that. In all probability the respiratory centres are affected, causing a painful and spasmodic contraction of the muscles actuating the walls of the lungs. In most instances the lungs appear to be immediately flooded with water, and the swimmer sinks 'like a stone.'

Writers' cramp, *telegraphists' cramp*, etc., are conditions following on the continual use of a set of muscles in a particular way. The diseases are gradual in their onset, beginning with a slight disturbance in the usual movements and proceeding to total helplessness in those movements, although the same muscles may be used quite comfortably in another way. Massage is said to have beneficial effects in some instances, but the cause probably lies in the nervous centres, and prolonged rest is usually necessary to effect a cure.

C. is symptomatic of many diseases. Cholera produces C. of the lower extremities, arsenical poisoning is accompanied by painful contractions, colic brings on internal C., and the disturbance of the relative positions of organs in pregnancy produces characteristic C's.

Cramp, **Crampern**, term applied to a metal bar used in masonry. Usually composed of iron, the bar is bent at both ends and let into the upper surface of two pieces of stone which have been joined together by their perpendicular faces. Copper is the most durable material for the purpose.

Cramp Rings, rings worn to ward off attacks of cramp. From the eleventh century to the time of Queen Mary rings blessed by the sovereign on Good Friday, and made of the gold and silver coins offered by him on that festival, were supposed to possess the power of curing cramp, scrofula or 'the king's evil,' and epilepsy.

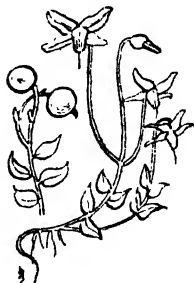
Crampton, Thomas Russell (1816–88), railway engineer, b. at Broadstairs. He invented the locomotive which bears his name and which for forty years was used by the N. of France railway for its express trains. He invented also a rotary dust-fuel furnace, brick-making machinery, etc., and an automatic hydraulic tunnel-boring machine which aroused great

interest in connection with the Channel tunnel project. C. laid the first successful submarine cable between Dover and Calais in 1851.

Cran, in Scotland, a measure of herring, just taken from the net, that will fill a barrel; equal to $37\frac{1}{2}$ imperial gallons or about 750 herrings.

Cranach, or **Kranach**, **Lucas** (1472-1553), called the Elder, Ger. painter and engraver, b. at Cronach, near Bamberg, Bavaria, his family name being Sunder. For nearly fifty years after this he worked at the electoral palace at Wittenberg. In 1508 Frederick the Wise granted him the crest of a winged serpent, with which all his prin. pictures are marked. He was an intimate friend of Melancthon and Luther, painting portraits of both, and being a witness to, and one of the convivers at, the latter's marriage to Catherine Bora. He was twice burgomaster of Wittenberg, and d. at Weimar. His style seems to have been formed by Matthew Grünewald, and his work is more admirable for invention than execution. Among his best works are 'Christ on the Cross,' being the altar-piece at Weimar, and 'The Preaching of John the Baptist.' His engravings, both on wood and copper, are excellent but very rare. His works are numerous, and may be seen at Weimar, Prague, Leipzig, Schneeberg, Gotha, Munich, and Berlin. See his *Life and Works* by Heller (Nuremberg), 1851.

Cranach, or **Kranach**, **Lucas** (1515-86), called the Younger, Ger. painter, son of Lucas C. the Elder. The son was his father's devoted helper and collaborator, and it is often difficult to decide whether a picture is the work of the elder or of the younger C., so much do their separate paintings resemble each other in style, etc. Some of his pictures are in Wittenberg and others in Dresden, Munich, and Berlin.



CRANBERRY

Cranberry, species of *Vaccinium*, belongs to the Ericaceae and is a member of the same genus as the blackberry (q.v.) and puckleberry. The Brit. C. is found wild abundantly in the fens of Norfolk, Lincolnshire, and many other parts of England, and it occurs frequently in the highlands of Scotland. The fruit is a round, sharp, red berry which makes excellent tarts and preserves, and it is

often stewed with apples to give them a pleasant colour.

Cranborne, par. of Dorsetshire, England, 26 m. N.E. of Dorchester and 10 m. N. of Wimborne in the woodland tract known as C. Chase. Boudicca is believed to have fought the Romans here. Its many antiquities include a hunting residence of King John. Pop. 800.

Cranbrook, little mkt. tn. and par. pleasantly situated in the world of Kent, England. It has a large trade in hops and malt. From the fourteenth century to the seventeenth it was a busy seat of the broadcloth manuf., introduced there by the Flemings. St. Dunstan's Church contains a celebrated baptistery. C. School was founded about 1520 by John Blubery, and received a royal charter in 1574. Pop. 4000.

Crandall, **Prudence** (1803-90), Amer. school teacher, b. at Hopkinton, Rhode Is.; her parents were Quakers; she estab. at Canterbury, Connecticut, a private academy for girls, where she lost her white patrons by admitting a coloured child. She then opened, on advice of W. L. Garrison, a school for 'young ladies and little misses of colour,' in connection with which she was subjected not only to social persecution, but also to prosecution under special enactment of the state legislature—i.e. the Black Law of May 24, 1833. She refused to obey this law, and was imprisoned sev. months. In 1831 her house was attacked and partially destroyed. She gave up her project and married the Rev. Calvin Philleo, after which she lived in New York, Illinois, and Kansas.

Crane, **Stephen** (1871-1900), Amer. writer, b. at Newark, New Jersey, U.S.A. Fourteenth child of a Methodist preacher, he studied for some time at Syracuse Univ. and then entered newspaper work. His first book, a harshly realistic novel, *Maggie: a Girl of the Streets* (1893), did not attract much attention, but in 1895 appeared his masterpiece *The Red Badge of Courage*, a graphic picture of war, the scenes taking place during the Amer. Civil war. Later he was a war correspondent in the Greco-Turkish war and in America's war with Spain. Previously he had been on a filibustering expedition to Cuba. The ship on which he was a passenger was wrecked. The exposure permanently affected his health and eventually brought about his early death, but it also gave him the inspiration for one of the finest short pieces in Amer. literature—*The Open Boat* (1897). C. was also the precursor of the free-verse school, which in after years was to be made celebrated by the Imagists. He pointed the way in his two vols. of verse *The Black Riders* (1895) and *Ifar is Kind* (1899). Came to England in failing health and became a close friend of Joseph Conrad. He d. of consumption at Badenweiler in the Black Forest. See life by T. Hoer, 1923, 1936.

Crane, **Walter** (1846-1915), Eng. artist well known as a painter, designer, book illustrator, writer, and lecturer. He was b. in Liverpool, son of Thomas C., an

artist from whom he received his first lessons in painting. His illustrated children's books are masterpieces and include *Baby's Bouquet*, *Pan-pipes*, Grimm's *Household Stories*, Spenser's *Faerie Queene*, *Illustrations to Shakespeare's Tempest*, etc. He owed his reputation as a painter chiefly to his water-colour paintings, though he worked in oils too. Among his easel pictures are 'The Bridge of Life,' 'The Chariot of the Hours,' 'La Belle Dame Sans Merci,' 'A Masque of the Four Seasons,' 'Prometheus Unbound,' etc. His pictures are generally allegorical in subject and are characterised by minuteness of decoration; the pre-Raphaelite influence predominates. A number of private homes and public buildings contain decorative work—modelling, trezies, panels, and mosaics—by him, and some of his designs for tapestries are in the S. Kensington Museum. He, jointly with Wm. Morris, brought about the revival of the decorative arts and crafts in England; he was the first president of the Arts and Crafts Society, which he helped to found in 1888. He wrote, among other works, *The Bases of Design* (1898); *Line and Form* (1900); *Ideals in Art* (1905); and an autobiography, *An Artist's Reminiscences* (1907). See P. G. Konody, *The Art of Walter Crane*, 1902.

Crane, machine for raising, lowering, or placing in position heavy bodies. From early times such appliances have been in use, but of simple construction actuated by manual or animal power. With public works of magnitude better machines came into being, first actuated by hand power only, later by steam, hydraulic power, or electricity.

Derrick cranes have an upright member pivoted at the ends, the top being maintained in position by two raking members anchored at their lower ends. From the foot of the derrick slopes a raking jib, pivoted at its upper end to the derrick top, suitable crab and lifting tackle being provided.

Portable cranes are jib Cs. mounted upon a carriage, running upon rails. The jib is tied back to the upper part of a frame turning horizontally upon a pivot. The rear end of the frame is carried back to support the crab gear, which, with supplementary weights, balances, in whole or in part, the load to be lifted. Steam power is also used to operate such Cs., a vertical boiler and engine, with the necessary gear and winding drum, being substituted for the crab. Jib Cs. are also mounted on specially constructed motor vehicles.

Gantry cranes consist of girders mounted on end wheels, carrying a crab, and are able to lift and transfer loads to the limit of the gantry run. The crab is made also to travel along its girders, giving a double motion.

Goliath cranes have power appliances for lifting, mounted and running upon girders with rigidly framed legs at either end supported by wheels resting upon rails, along which the whole machine may move. They are used in the shifting and

setting of heavy blocks in harbour work, or other heavy operations.

Titan cranes used for similar purposes have horizontal girders, capable of swivelling upon a turntable which is mounted at the top of a travelling substructure. At one end of the double girder is the power plant. By an ingenious arrangement, the load can be moved along while hanging from the arm of the Titan, remaining at the same level, rising, or falling as desired.

Hammer-headed cranes are similar to Titans, but work on a fixed tower.

Hydraulic cranes, largely used about docks, are simple machines operated by water pressure through the medium of a ram having pulleys, served with a chain or rope passing over the head of a projecting jib, which may be swan-necked in form. See W. H. Atherton, *Hoisting Machinery*, 1940.

Crane, member of the family of the Gruidæ, order Gruiformes, superficially resembling the heron, with which it is commonly confused, and which in Scotland is usually called the C. The Cs. are tall birds with long legs and necks, the head being either naked or tufted. Their wings are short and powerful, the feet unwobbed. They are the largest of the wading birds, and are found in most parts of the world except Malaysia. The hind toe is greatly elevated, and has a sharp claw. Noteworthy among this species is the N. Amer. whooping C. whose breeding places have for long been a mystery. Recent discoveries of the birds in Saskatchewan may enable steps to be taken for their protection, and to save them from rapid extinction. The European C. is now only known in England as a migrant, passing to the N. to breed.

Crane-fly, or **Daddy-long-legs**, popular names given to members of the Tipulidæ, a family of dipterous insects containing over 1000 species world-wide in distribution. The significance of the long and fragile legs is unknown, but their presence has given the owners their nicknames. The larvæ are aquatic and terrestrial; the latter grubs are often called leather-jackets, and are destructive to the roots of crops. The abdomen of the female insect terminates in a long ovipositor.

Crangonore, see **KODUNGALUR**.

Crangon, genus of decapod crustaceans, belongs to the family Crangonidæ. *C. vulgaris* is a very well-known species, as it is the common shrimp found on our shores.

Craniata, term applied in various ways to members of the animal kingdom, but in its widest and most usual sense it is synonymous with the Vertebrata (q.v.).

Craniometry, rules for measuring the cranium in order to fix the facial angle and to provide a basis for the comparison and classification of the skulls of different individuals and of different races. The various linear measurements used are made between localised points on the surface.

Craniotabes, atrophy of the skull occurring in infancy, resulting from syphilis, rickets, or marasmus.

Cranium, see SKULL.

Crank, in mechanics a device consisting of C. arm and C. pin by means of which rectilinear reciprocating motion is changed into rotary motion. The handle of a grindstone is an example of a single C., while the C. of a wheel changes the rectilinear motion of a piston-rod. The bell C. merely changes the direction of rectilinear motion.

Cranleigh, vil. of Surrey, England, 8 m. S.E. of Guildford. Here is a public school. Pop. 4000.

Cranmer, Thomas (1489-1556), archbishop of Canterbury, b. of a good family



THOMAS CRANMER

An engraving after a picture at Lambeth Palace

at Aslaeton in Nottinghamshire. After being educated under a tutor remarkable, even in those days, for sternness, he was sent in 1503 to Jesus College, Cambridge, where he became a fellow. He remained as divinity prof. at this college until 1528. The 'sweating sickness' was then raging throughout the co., to avoid which C. removed to Waltham with two of his pupils. Here he met Fox and Gardiner, to whom, in conversation on the question of Henry VIII.'s divorce from Catherine, he made the remark which was the cause of all his after promotion. His suggestion was that Henry should have recourse to the canonists and univs. rather than to the pope. Henry immediately commanded him to write a treatise on the subject, and to be prepared to support his position. In 1530 C. was sent on an embassy to Rome, and two years later to Germany. The pope made him grand penitentiary of England, and on his Ger. embassy he married the niece of the reformer Oslander, an uncanonical but not illegal proceeding, though he was already high in

the Church. He was summoned back to England on the death of Warham to fill the vacant archiepiscopal throne, and, preceded by his wife, he came reluctantly to be consecrated on March 30, 1533. Henry had succeeded in his choice of a pliable minister. In May C. pronounced the king's marriage with Catherine to be void *ab initio*, and that with Anne Boleyn, secretly celebrated the Jan. before, to be valid. Three years later he annulled the marriage with Anne in the same fashion. In 1540 he divorced him from Anne of Cleves, and next year he was instrumental in securing Catherine Howard's condemnation. Yet, although C.'s frailty led him into culpable compliance with the king's wishes, he was naturally kind-hearted. He opposed the Six Articles (1539), and did his best to save the lives of Fisher, More, and Anne. He had little to do with the dissolution of the monasteries, though he was connected with the deaths of Frith, Lambert, and other heretics. C.'s chief work was in the direction of the Eng. Reformation. From the beginning he had been zealous for the Bible, and in 1538 it was ordered that a copy should be placed in every church. In 1545 he pub. his *Litany*, almost identical with the one at present in use, which shows his great merit as a master of prose. In 1548 came his *Catechismus*, and in 1550 his *Defence of the True and Catholicke Doctrine of the Sacrament*, a powerful attack on transubstantiation. His influence in the compilation of the Prayer Book itself can hardly be overestimated. On the accession of Mary, C. was brought to trial and deposed from his office of archbishop. Finally he was persuaded to recant. Then at the end courage came to him, and at the moment when he should publicly have proclaimed his recantation, he rested his old position, and deplored his past cowardice. Courageously then on March 21, 1556, he met his death at the stake, first burning the hand which had signed his recantation. See J. Strype, *Memorials of Thomas Cranmer*, 1694; W. F. Hook, *Lives of the Archbishops of Canterbury*, 1860-76; A. J. Mason, *Thomas Cranmer*, 1898; C. H. Smyth, *Cranmer and the Reformation under Edward VI.*, 1926; and A. C. Deane, *Life of Thomas Cranmer*, 1927.

Cranmere Pool, boggy pool on Dartmoor, Devonshire, England, about 7 m. from Chagford. It is known as the loneliest place in England.

Crannog (Celtic *crann*, a tree), modern name for the lake-dwellings or stockade is. formerly common in Scotland and Ireland. They consist of stockaded wooden huts built upon a floor of earth and flagstones, having for foundation a shallow or islet raised and strengthened by brushwood, piles, and gravel. This mode of defence seems to have been peculiar to the Celtic races, but they bear no resemblance to the lake-dwellings of Switzerland. No Cs. have been found in England.

Cransac, large com. of France in Aveyron, in the arron. of Villefranche,

20 m. distant. There are mineral springs and coal-mines. Pop. 6300.

Cranston, city of Providence co., Rhode Is., U.S.A., with an area of 29 sq. m. It includes the cotton manufacturing vis. of C. Pontiac, and Natick. There is a state farm. Pop. 47,000.

Cranwell, Lincolnshire, England, situated 6 m. from Sleaford, became noted after the First World War as the headquarters of the R.A.F. command and the cadet college. It has also an electrical and wireless school and an R.A.F. hospital. The college is run on parallel lines to Sandhurst, and all candidates for entry must sit for the navy, army, and air force entrance examination held in June and Nov. of each year. Candidates must be between the ages of 17½ and 19½, and in physically fit condition. In addition to aviation they are taught engineering. The course extends over a period of two years, and the cost is approximately £250; scholarships are awarded, and the sons of service men are sometimes admitted for reduced fees. The college of aeronautics at C. is now kept for post-graduate instruction in aeronautical science and engineering.

Craonne, small Fr. tn., in the dept. of Aisne, 75 m. N.E. of Paris, and 10 m. S.W. of Laon. During the First World War it was the scene of much fighting during the Fr. offensive in April 1917, it being a key position to the famous road, the Chemin des Dames. Here the Gers. were strongly posted with numerous machine guns, which beat off every Fr. advance. Early in May, however, with strong reinforcements the Fr. captured the position.

Crape, thin transparent silk material, with an unglossed, rough, and wavy surface. It is manufactured by twisting the threads before weaving, without removing the natural gum of the silk, and then either boiling or dressing with a viscous gummy solution, by which the threads are partially untwisted and the characteristic appearance obtained. It is usually dyed black and used for mourning dresses. The Fr. word for C. *crêpe*, is usually used to denote C.-type fabrics other than black mourning silk. *Crêpe de Chine* is a coloured or white fabric made from raw silk; other fabrics used as dress materials are *crêpe georgette* and *crêpe marocain*.

Craponne-sur-Arzon, tn. in the dept. of Haute-Loire, France, 19 m. N. of Le Puy, and 27 m. from St. Etienne. Pop. 3000.

Crashaw, Richard (1612-49), Eng. poet and priest, b. in London, the son of Wm. C., a learned divine and a strong upholder of Puritanism. He was educated at the Charterhouse and Pembroke Hall, Cambridge, and became a fellow of Peterhouse in 1633. In 1643 he left Cambridge, shortly after the beginning of the struggle between king and Parliament, and went to the Netherlands. It is possible, although not certain, that he returned to England and became a member of Oxford Univ. In 1644 he was, in his absence, ejected from Cambridge Univ. by the Parliamentarians for

refusing to accept the covenant, and deprived of his fellowship. At this time, or soon after, he was in France under the patronage of the exiled Queen Henrietta Maria, and was converted to Rom. Catholicism. In 1646 he gained, through the friendship of the poet Cowley, the patronage of Cardinal Palotto, who found him a post at Rome. He was later, in 1649, appointed as canon to the church of Our Lady of Loretto, and d. there on Aug. 21 of the same year. His prin. sacred poems were pub. in *Steps to the Temple* (1646), to which were added some secular poems under the title 'Delights of the Muses.' Later eds. (1648 and 1652) contained additional poems, and others have since been added from MS., while his earlier poems in Lat. and Gk. were pub. in 1634 under the title *Epigrammatum Sacrorum Liber*. C.'s poems are of the metaphysical school, and his best work places him in the front rank of Eng. religious poets. A complete ed. of his poems, collated with all existing texts, was pub. in 1927, ed. by L. C. Martin. See Sir E. Gosse, *Seventeenth Century Studies*, 1883; F. Thompson, *Collected Works* (vol. iii.), 1913; R. C. Wallerstein, *Richard Crashaw: a Study in Style and Poetical Development*, 1935; and A. Warren, *Richard Crashaw, a Study in Baroque Sensibility*, 1939.

Crassulaceae, natural order of dicotyledons, consist of succulent plants, herbaceous or shrubby, ann. or perennial, which grow in hot, dry, exposed places in the more temperate parts of the Old World. *Sempervivum* contains the species *S. tectorum*, the house-leek.

Crassus, Lucius Licinius (140-91 B.C.). Rom. orator. He served as proconsul of Gaul, becoming famous both for wit and uprightness. In 95 B.C. he was elected consul together with Quintus Scævola, and the rigorous law they enacted, banishing all who had not the full rights of citizenship from Rome, was one of the causes of the Social war. In 92, as censor, he closed all the schools of the rhetoricians. Cicero, in *De Oratore*, makes him his own mouthpiece.

Crassus, Marcus Licinius (c. 108-53 B.C.). Rom. triumvir, general, and statesman, b. in Rome of a distinguished family, and early known for his great wealth, being surnamed 'The Rich.' He was forced to go into exile in Spain during the dictatorship of Marius and Cinna, but returned to join Sulla, who gave him a command in his army. In 71 B.C. he was chosen prætor, and while in this position took the command against Spartacus, the leader of the revolt of the gladiators of Capua. In a battle near Rhegium he completely defeated the rebels, Spartacus and a very large number of his men being killed. On his return he was rewarded with an ovation, and had a laurel crown instead of the usual myrtle wreath. In 70 he was elected consul together with Pompey, and used every means to gain popular favour, entertaining the whole populace at a great feast and distributing free corn. He narrowly escaped conviction at this time of complicity in the

Catiline conspiracy. A few years later he joined with Pompey and Cæsar to form the first triumvirate, which ruined the power of the senate, and of which he proved himself an important member. In 55 he and Pompey were again elected as consuls, and obtained command of the army in Syria for five years, where he hoped to amass a large fortune. He determined to invade Parthia, and in 54 crossed the Euphrates, but, after taking one tn., returned to winter in Syria. The next year he invaded Mesopotamia, and was defeated with great loss by the Parthian general Surenas at Carrhræ. His troops melted and compelled him to meet Surenas in a conference, at which he was treacherously killed. He was famous for his avarice, industry, and love of speculation, and was a large slave-dealer.

Cratægus, genus of Rosaceæ, consisting of about 100 hardy trees and bushes, the different species of which are cultivated for the sake of their ornamental appearance. *C. oxyacantha* is the hawthorn or may, of which *C. monosperma*, the white thorn, is a variety; both are common to Britain.

Cratæva, genus of tropical plants. *C. gymnandra*, the garlic pear, is an evil-smelling native of bushy places and thickets near the seaside in Jamaica; *C. lapia*, the tapia or common garlic pear, is a tree about 20 ft. high, and the fruit conveys the odour of garlic to animals feeding on it; *C. mannifera*, the bilva or mûhura, is a small tree with a nutritious and aperient fruit of delicious taste.

Crater, see under VOLCANOES.

Crater, constellation of the S. hemisphere below Hydra and just above Leo. None of its three chief stars is of great magnitude.

Craterus (d. 321 B.C.), trusted general, friend, and the mentor of Alexander the Great. C. did not fear to rebuke Alexander for his faults nor to lay before him the complaints of his soldiers. He commanded the cavalry during the expedition to India and led the veteran army back to Macedonia. Alexander appointed him to succeed Antipater, whose daughter he married, as regent of Macedonia, but on Alexander's death in 323 C. and Antipater together governed Macedonia, Greece, and Illyria. He helped to defeat the Gks. in the Samian war, and was killed in combat with Eumenes, his old companion in arms in Antipater's war with Pericles in Cappadocia.

Crates (d. 424 B.C.), Gk. comedian of Athens. His work marks an epoch in the development of the Attic comedy; he abandoned political allusion and the lampooning of individuals and wrote comedies of a more general character.

Crathie, par. in Aberdeenshire, Scotland, among the Grampian Mts. In it is Balmoral Castle, the highland royal residence.

Cratinus (c. 519-422 B.C.), Gk. comic poet, probably b. at Athens, the son of Callimedæ. He was a writer of the old comedy and the rival of Aristophanes, over whom he gained sev. victories, and through whom our knowledge of C. is

mostly gained. He seems not to have begun writing till late in life, and to have lived to a very advanced age. He is credited with various improvements in the arrangement of the chorus and of Gk. comedy generally, and is said to have been the first to make comedy an instrument of personal satire. He himself used it as a vehicle for audacious sarcasm, frequently directed against Pericles. The names of forty comedies by him have come down to us, of which nine appear to have gained prizes. Among these the chief is *The Wine Flask*, which in 423 gained the first prize, the *Comus* of Ameipsias coming second, and the *Clouds* of Aristophanes third.



CRAWFISH

Cratippus, Peripatetic philosopher of Mitylene in the first century B.C., chiefly known through allusions in the works of Cleero, his pupil and friend. Plutarch says that he conversed with Pompey on his retreat from Pharsalia. About 48 B.C. he opened a school of philosophy at Athens, which was attended by Marcus, the son of Cleero, and by M. Brutus.

Crau, La, originally a stony and partially sterile desert in the dept. of Bouches-du-Rhône, France, but developed in recent years into a prospering agric. dist., specialising in early vegetables. It forms part of the alluvial and malarial delta of the R. Rhône, and is traversed by the Crauonne Canal.

Craven, Pauline (1820-91), daughter of Comte Auguste Marie de Ferronnays and wife of Augustus C., diplomatist. Her *Récit d'une sœur* (trans. as *A Sister's Story*, 1868) is the story, told with great charm, of the sorrows of her family while in Rome and Naples. The book, which was crowned by the Académie Française, made so great an impression in France and in England that nine eds. were pub. in a few months. Her other works include *Le Travail d'une Âme* (1877); *La Jeunesse de Fanny Kemble* (1880); and *Kilian* (1882); and *Lucia* (1886).

Crawfish, or **Crayfish**, name given to sev. species of decapod crustaceans which

are very closely allied to the lobsters. All are fresh-water animals, and the only marine crustacean to which the term is ever applied is *Achephrops Norvegicus*, the Norwegian lobster, which is not a true C., but a lobster. C's. are nocturnal in habit, omnivorous in diet, and they undergo a series of moults before the perfect creature is formed. C. may be found in the rivers and streams of England, especially in limestone dists. They make small burrows in the banks where they remain during the daytime, away from the light.

Crawford and Balcarres, Earls of, title of the Scottish family of Lindsay. The first of this name to settle in Scotland seems to have been *Walter de Lindsay*, an Anglo-Norman baron of the reign of David I. Becoming rapidly influential, and spreading from their original homes at Erildoun, Roxburghshire, and Crawford in Clydesdale, to Haddington, Forfar, Elie, etc., the Lindsays figured conspicuously in the hist. of Scotland. Their name occurs frequently in the accounts of the feuds between the Scottish nobles; the doings of 'the Lindsays light and gay' are commemorated in the ballad of the battle of Otterbourn, and *Piersart* refers to the adventures of *Sir John Lindsay* in the same battle. Another renowned member of the family was *Sir David Lindsay* of Glenesk, who was created earl of Crawford in 1397. He married Princess Elizabeth, daughter of Robert II., and is the hero of the celebrated tournament against Lord Welles described in Wymton's *Cromykill*. This redoubtable and gallant warrior helped to his feet his vanquished opponent, whom he was at liberty to slay, and presented him to the queen. *David*, the third earl, was killed fighting on the side of the Douglasses against the king in 1444. *Alexander* (d. 1454), the fourth earl, was famed for his violent and ferocious character, in consequence of which he was surnamed the Tiger Earl; he was also known as Earl Beattie. He became hereditary sheriff of Aberdeen, a dignity of which he was afterwards deprived by James II.; and his estates were forfeited for an attempt, in concert with other Scottish nobles, to dethrone the king. After a long defiance he at last made submission to James who, to satisfy his oath to 'make the highest stone of his (Lindsay's) castle at Finhaven the lowest,' threw a loose stone from one of the battlements. *David*, the fifth earl, became very powerful and was created duke of Montrose in 1488 for his support of James III. against the rebellious barons. The title of duke had never before been conferred upon a Scot not of royal birth. He was besides hereditary sheriff of Angus, keeper of Berwick, high admiral, master of the household, lord chamberlain, joint high justiciary, and was employed on important embassies to England. Wounded and taken prisoner at the battle of Sauchieburn, he was in the next reign deprived of all his offices for his loyalty to James III., but ultimately pardoned. *Alexander*, the ninth earl, won by his crimes and misdeeds the title of the

Wicked Master of Crawford, and forfeited his title which passed to David Lindsay of Edzell, but David dying without issue, the son of the wicked earl succeeded to the title in 1558. In the Reformation struggles the elder branch of the Lindsays took the Catholic side, and their implication in these contests and as royalists in the great civil wars of Mary and James VI. brought about their ruin and the succession to the earldom of the Byres branch of the family. *John*, sixth Lord Lindsay of the Byres, was a Protestant and a name of iron character, who helped to compel Mary to resign her crown. His grandson *John* was high treasurer of Scotland, and his great-grandson *William* was president of the Parliament after the revolution of 1688, and leader of the party who overthrew the episcopacy. The fourteenth, fifteenth, and sixteenth earls were brothers; *George* was assassinated as colonel in a Dutch regiment, *Alexander* d. insane, and the royalist soldier, *Ludovic*, d. in exile. *John*, the twentieth earl, was educated at a military academy near Paris and served with the Imperial army under Prince Eugene, then in Russia and Turkey. In 1717 he was appointed to the command of the Scots Greys, became lieutenant-general, and fought with distinction at Dettingen and Fontenoy. He was much beloved for his bravery, generosity, and amiability. On his death his cousin *George* became earl.

The earldom reverted to the earls of Balcarres on the death (1808) of the twenty-second earl. The title was not assumed by them, however, until 1848, when James, the seventh earl of Balcarres, estab. his claim to it before the House of Lords. The earls of Balcarres descended from the ninth earl of Crawford, *Sir David Lindsay*. Lady Anne Lindsay, author of *Auld Robin Gray*, was a member of this house. *Alexander William Crawford Lindsay*, twenty-fifth earl of Crawford and eighth earl of Balcarres (1812-80), was well known as a writer on religious art and on philosophy, etc. His pub. works include *Lives of the Lindsays* (1840, 1858); *Progression and Antagonism* (1846); *Sketches of the History of Christian Art* (1847); *On the English Hexameter* (1862); and *Etruscan Inscriptions Analysed* (1872). He was also the founder of a magnificent private library at Haigh Hall, Lanarkshire, in which the literatures of all nations were represented. He d. in Florence, and was buried in the family vault at Dun Echt, from which his body was mysteriously removed, to be found again in 1882 in a wood not far away from the mausoleum. He was succeeded by *James Ludovic*, his son, who became twenty-sixth earl. His son, *David Alexander Edward Lindsay* (1871-1940), succeeded to the title in 1913. He was a trustee of the National Gallery, the National Portrait Gallery, and the Brit. Museum, and was for many years Unionist Whip in the House of Commons, where he sat for Chorley div., 1895-1913; was president of the board of agriculture and fisheries, 1916; lord privy seal, 1916-19; chancellor of the duchy of Lancaster, 1919-21; first

commissioner of works, 1921; minister of transport (in Cabinet), 1922. His son, *Robert Alexander Lindsay* (b. 1900) is also a trustee of the Brit. Museum and National Gallery, and is, besides, chairman of the Royal Fine Art Commission (since 1943).

Crawford, Francis Marion (1851-1909). Amer. novelist, son of Thomas C., the sculptor, and nephew of the Gen. Marion who took part in the Amer. War of Independence. He was b. at Bagin-di-Lucca in Tuscany, and spent the first eleven years of his life in Rome. He was educated at Concord, New Hampshire, at Trinity College, Cambridge, at Karlsruhe, and Heidelberg. Returning to Rome at the age of twenty-two he studied the Oriental languages, and in 1873 undertook press work at Allahabad in connection with the *Indian Herald*. Falling ill, he went to live in New York with his uncle, Samuel Ward, who was to become the hero of the novel, *Dr. Claudius*. Later he travelled in America and Turkey. His first novel, *Mr. Isaacs*, appeared in 1882, and following it (among others) came *Dr. Claudius* (1883); *A Roman Singer* and *An American Politician* (1884); *Zoroaster* (1885); *Sarcinacea* and *Mario's Crucifix* (1887); *With the Immortals* (1888); *San' Ilario* (1889); *The Robstons* (1894); *Casa Braccio* (1895); *A Rose of Yesterday* (1897), etc. He wrote also a play, *Francesca da Rimini*, produced in Paris in 1902, and a historical work, *Arc Roma Immortalis* (1898). Marion C. joined the Rom. Catholic Church. He d. at Sorrento.

Crawford, Robert (1700-33), Scottish poet, celebrated as the author of *The Bush about Traquair*, *Tweedside*, and other songs. He contributed lyrics to Allan Ramsay's *Tea-Table Miscellany*. Burns speaks admiringly of some of his work. He was the son of Patrick C., an Edinburgh merchant, and was drowned returning from France. Many of his songs are pub. in the *Orpheus Caledonicus*.

Crawford, Thomas (1813-57), Amer. sculptor, b. in New York city. In 1834 he settled in Rome and studied under Thorwaldsen. He estab. his reputation by a statue of Orpheus for Boston in 1839. He executed also statues of Washington and Beethoven; a figure of Liberty; a bas-relief, 'The Progress of American Civilisation,' etc. He became blind in 1864, and d. in London. See L. Taft, *The History of American Sculpture*, 1924.

Crawfordsville, co. seat of Montgomery co., Indiana, U.S.A., situated on Sugar Creek and on the Chicago, Indianapolis, and Louisville railway. It exports 100,000 pigs annually and has important manufs. Washash College for men is here. Pop. 12,000.

Crawford, Thomas (c. 1530-1603), Scottish soldier, who was taken prisoner at the battle of Pinkie, 1547, and afterwards helped in bringing the murderers of Darnley to trial. He took Dumbarton Castle in 1571, and forced Edinburgh Castle into surrender, 1573.

Crawl, fast racing stroke in swimming (q.v.).

Crayer, or **Crayer**, **Caspar de** (1584-1669), Flemish painter, b. at Antwerp. His chief works were altar-pieces for various tns. In the Netherlands, and include 'Christ appearing to Magdalen,' in the church of Notre Dame at Brussels, and 'The Assumption,' in Ghent Cathedral.

Crayfish, see **CRAWFISH**.

Crayford, nrh. dist. in Kent, on the R. Cray, was the scene of the victory of Hengist over the Britons. It manufs. carpets, and is also noted for calico printing. Pop. 12,000.

Crayon Drawing, see **PASTEL**.

Crazy-bone, see **FUNNY-BONE**.

Crazy Widow, see **COURLAN**.

Cream, see **BUTTER**.

Creameries. Until the middle of the nineteenth century, butter-making was carried out entirely by the farm on which the milk was produced. In Ireland, which has always been primarily an agric. country, Sir Horace Plunkett inaugurated a co-operative movement among farmers which would enable them to market their produce on a more business-like and profitable basis. Plunkett had gained first-hand knowledge of farming while running as a young man in the U. States, and the Irish Agric. Organisation Society, which he founded in 1891, became a great success; he was later, 1900, made vice-president of the Dept. of Agric. and Technical Instruction in Ireland. Although he experienced the utmost difficulty in establishing the first creamery in the country, to-day there are well over a thousand throughout Ireland. The Eng. Agric. Organisation Society was based on the I.A.O.S. To-day comparatively little butter is made on Brit. farms, and its price is always in advance of that of creamery butter. C. also act as collecting and distributing centres for milk, and have pasteurising and bottling plants. 'Clotted cream' (clotted, or scalded) is made chiefly in Devonshire, Somerset, and Cornwall. There are numerous C. in New Zealand and Canada. The average ann. value of Canadian creamery butter is about \$63,000,000, and the output (1941) about 300,000,000 lb. from 1256 C. New Zealand C. have, however, the larger export trade. The total butter-fat production in 1940-41 was 411,000,000 lb. and the amount exported was 2,142,000 cwt.

In the U.S.A. C. are most numerous in the corn belts, and respond to winter as well as summer dairying, whereas the cheese factories are estab. chiefly in the cooler parts of the dairying region of Wisconsin, and are useful mainly in absorbing the extra supply of summer milk. A cheese and butter factory combined was estab. in Orange Co., New York, in 1851, but the first actual creamery dates from 1872 in Manchester, Iowa. In some of the great Amer. C. machinery is estab. which can manuf. millions of pounds of butter every year. An average of over 2,000,000,000 lb. of farm and factory butter is produced yearly. The *Dairy and Creamery Journal* was estab. in London in 1889. See also **DAIRY**; **DAIRY FACTORIES**.

Cream of Tartar, or **Potassium Hydrogen Tartrate** ($C_4H_5O_6K$), substance occurring in a crude form in the later stages of the fermentation of grape-juice. This product is known as 'argol,' and is found deposited on the sides of the cask in which the fermentation has taken place. It is dissolved in hot water, the solution is filtered and the pure C. of T. crystallised out. C. of T. is used in medicine as a purgative, and is often used as the acid element in baking powder.

works are *The Rise and Progress of the British Constitution* (1834); *Some Account of the Foundation of Eton College* (1848); *The Fifteen Decisive Battles of the World* (1851); *Invasions and Projected Invasions of England* (1852); *A History of the Ottoman Turks* (1854-56); and *The Imperial and Colonial Constitutions of the Britannic Empire* (1872).

Creation. For a very long while a deep controversy raged between theologians and scientists as to the origin of the world



MICHELANGELO'S 'THE CREATION OF MAN'

Anderson

A detail from the Sistine chapel of the Vatican, Rome

Creanga, Ion (? 1837-89), Rumanian prose writer of great renown, b. at Hunulesti. His works are considered to be among the glories of the literature of that nation. His stories are written in popular language and are based on the old folk-tales. His writings appeared in 1890 under the name of *Porești* (Tales), and in 1892 appeared his *Amintiri din Copilarie si Anecdote*. His collected works came out in 1896 in six vols.

Creasol, see CREOSOTE.

Creasote, see CREOSOTE.

Creasy, Sir Edward Shepherd (1812-78), historian, b. at Bexley in Kent, and educated at Eton and King's College, Cambridge. He was called to the Bar in 1837, and served as assistant-judge at the Westminster Sessions Court. In 1840 he was appointed prof. of hist. at London Univ., and in 1860 chief justice of Ceylon. Knighted in the same year. His chief

and of mankind. Genesis, it was held, pointed to a creation of the world in six days by the divine command; science, on the other hand, pointed out that the world and life gradually evolved under natural laws. But when the great evidences of geology and biology were recognised, it was seen that the view taken by scientists did not deny the special origin of life or matter, and it was seen that the laws of nature could easily be the laws of God. A further development towards healing the breach between the two views was taken when 'day' was understood as meaning a period. This substitution, biblical scholars affirmed, was easily allowable when the original Heb. was studied. Then for a while theologians who were also scientists endeavoured to harmonise the views expressed in Genesis and by scientists, and many attempts were made to fit in these periods with the order

of formation shown in geology and the succession of life as shown in palaeontology. Prominent among these attempts were the theories laid down by Chalmers, Smith, Miller, and Kuntz. A well-known attempt at thus harmonising the two divergent views was that made by Gladstone, to which Huxley replied.

So the struggle might have gone on indefinitely, as indeed it still does in certain quarters, for all evidence certainly points to a gradual development of matter and life, while Genesis certainly points to a specific C. The comparatively young science of biblical criticism, however, shows that there is no need to attempt this harmonising. It is interesting here to observe that most of the substance of the view of C. as given in Genesis is to be found in other and older cosmogonies. That of the Etruscans is very similar to the Bible story, while the Persian points to six creative periods of a thousand years each. So it is pointed out that the material in Genesis is incorporated from the others, and inspired and made the vehicle of revelation. And it is on this word revelation that the present view of the relation between science and Genesis hangs. It is a fundamental fact of literary criticism that any interpretation of a work must be governed by the *motif* of the whole. Since the Bible is to some extent a work of revelation it includes no matter which men can find for themselves by the exercise of the power of reasoning, otherwise it would not be a revelation. In fact it can be further stated that the Bible, being written in the infancy of the world, had to address itself to the child mind of the world, and its literary form and colour therefore suggest this. And since the child spirit is universal still, when the idea of God is the subject of reason, its purpose still remains the same, to reveal God as the creator of the universe, and therefore it is seen that the view in Genesis does not contradict nor affirm the scientific view of C. They are separate views, and the apparent contradictions between them are of no importance. See ADAM; COSMOGONY; DARWINIAN THEORY; EVOLUTION; GEOLOGY; MAN; and the articles on various religions. See C. M. Walsh, *The Doctrine of Creation*, 1910.

Crébillon, Claude Prosper Jolyot de (1707-77), Fr. novelist and dramatist, *b.* at Paris, the son of Prosper Jolyot de C.; educated at the Jesuit College of Louis le Grand. He began by writing for the stage, but later took up fiction. In 1748 he married Lady Stafford, an Englishwoman. In 1755 he became censor. He seems to have disappeared some time before his death. His novels—which include *Le Sopha* (1745, Eng. trans., 1781), for the indecency of which he was banished from Paris; *The Wanderings of the Heart and Mind* (1736); and *Letters from the Marchioness de M*—(1732, Eng. trans., 1737)—are clever but licentious. They were collected in 1779.

Crébillon, Prosper Jolyot de (1674-1762), Fr. dramatist, *b.* at Dijon; intended for the law, but persisted in writing, and

at an early age produced the tragedy of *Idomeneus*, which was very successful. He continued to issue tragedies on classical subjects in rapid succession. *Atréus*, *Rhadamistus*, popularly supposed to be his masterpiece, and *Electra* being very well received, while *Xerxes*, *Semiramide*, and *Pyrhus* met with but little success. In 1711 he lost his wife, and after her death lived in retirement for some years, much of the time in considerable distress from poverty. Later, however, his previous work was recognised by a place in the Fr. Academy and the position of police censor, and his new comfortable circumstances allowed him to recommence writing. In 1749 *Catiline* appeared, and was produced under court patronage in the presence of the king. At first it was received exceedingly well, but evidently failed on closer study to come up to the public expectation. *Le Triumvirat* (1755) was also only moderately successful. His last play, on Cromwell, was never completed.

Crécy (**Crécy-en-Ponthieu**), or **Cressy**, vil. of France, in the dept. of Somme, 12 m. N.E. of Abbeville, noted for the battle of 1346, in which Edward III. defeated Philip VI. of France. Pop. 1300.

Credence, name given to the small table used in a church, which stands within the chancel rails, beside the altar. It is used to stand the elements for communion on and also all the vessels appertaining to the administration of the sacrament. In the Book of Common Prayer the rubric instructs the priest to 'place upon the table so much Bread and Wine as he shall think sufficient.' Up to this moment the elements have rested on the C. table. The C. table was given final sanction as a 'legal ornament' by the queen in council in the year 1857. The term was also formerly used in social life to designate a side table on which were placed the dishes before being served at the general table. At this side table the different foods were tasted as a precaution against poison. It was employed in Italy, France, and Germany about the fifteenth century.

Credentials, instruments which an ambassador, envoy, or other diplomatic agent receives from his own gov. authorising him to appear in his diplomatic character and denoting his powers. The C. are usually in the form of a closed letter addressed to the sovereign or head of the gov. of the state to which the officer is accredited. A diplomatic officer will not be received in any other character than that which is given him by his C. For this reason he generally imparts their contents before being received by the sovereign or head of the gov. to which he is accredited.

Credi, Lorenzo di (c. 1459-1537), It. painter of the Tuscan school, *b.* at Florence, and a fellow pupil with Leonardo da Vinci under Andrea Verocchio. His style and choice of subject remained uninfluenced by the Renaissance through which he lived, and he actually burnt some of his pictures in the famous bonfire under the influence of Savonarola. He

was not exceptionally gifted, but was extremely persevering, and showed considerable feeling for beauty and elaborate finish. He excelled in madonnas and holy families, and was particularly fond of painting children. His best works include 'The Nativity' in the academy at Florence; 'The Madonna and Child' in the Louvre, Paris, which Vasari considered his masterpiece; 'The Madonna with Saints' in Pistoja Cathedral; 'The Baptism of Christ' in the Church of San Domenico at Fiesole; 'The Virgin' in the National Gallery, London; and 'The Holy Family' at Edinburgh. Others are in the Berlin Museum and the Uffizi at Florence. All show the influence of da Vinci very strongly. See Sir E. J. Poynter, *Classic and Italian Painting*, 1882, and G. Vasari, *Lives of the Painters*, 1885-88.

Credit, in a commercial sense, connotes the undertaking on the part of one party to a contract to pay money at a future time to the other party to the contract who gives valuable consideration for that undertaking. Both modes are used in conjunction with each other in commercial circles by means of the custom of giving bills of exchange drawn on third parties in payment of goods sold, *e.g.* by one merchant to another for exportation. The merchant taking the bill of exchange does not wait for payment to fall due on it, but gets it discounted at a bank. Thus, having given C. to one person in goods, he obtains C. from another in money. Commerce could not be carried on without such a system of C., and the extensive part which C. plays in the circulation of capital or the production and exchange of wealth is one which will be found discussed in all the text-books on political economy. The precise use of C. as an agent in the production of wealth is that it gives circulation to capital (*q.v.*) and renders it available wherever it can be most profitably employed. See further under BILL OF EXCHANGE; CAPITAL.

Crédit Foncier, institution founded in France by the economist Wolowski, and created under gov. patronage by a decree issued in 1852, to enable landowners and owners of house property to obtain money on mortgage of real securities at a low rate of interest, the loans to be repayable by annuities, including redemption of capital. The C. F. is really the name adopted subsequently on the amalgamation of the three original mortgage banks of Paris, Nevers, and Marseilles. Its operations and area of activity have been frequently extended since its formation, and in 1860 it was empowered to make advances to municipalities and depts. for public works and improvements. The control of the gov. over the C. F. is exercised by the appointment of the governor and two deputy governors, and by the rule that the approval of the governor is required to validate the decisions of the directors. The C. F. possesses under its charter, which has been extended for a period of ninety-nine years from 1881, the right to issue bonds at a fixed rate of interest repayable in fifty or sixty years, and,

where specially authorised, carrying a right to draw for prizes.

Credit, Letter of, order, open or sealed, given by bankers or others at one place, to enable a person to receive money from their agents at another place. The person who obtains a L. of C. may go to a particular place and need only carry with him a sum sufficient to defray his expenses. The L. of C. gives him some of the advantages of a banking account when he reaches his destination, as he may avail himself of it for part only of the sum named in it. A L. of C. is not transferable, and is said to be 'special' when addressed to a particular individual by name, requesting him to advance money to the bearer of the L. of C. One of a number of notes of L. of C. each for the same sum given by bankers to their foreign correspondents to pay money to persons about to travel abroad is called a Circular Note.

Crédit Mobilier: 1. Institution formed simultaneously with the *Crédit Foncier* in 1852 in France for making advances on the security of personal or movable (*mobilier*) estate. It was taken over in 1932 by the Banque de l'Union Parisienne. The C. M. of London, which was formed in 1861, was ultimately absorbed in the *Crédit Foncier* of London.

2. The C. M. of America was a construction company which, having obtained the contract to construct the Union Pacific Railroad, caused one of the gravest scandals in the hist. of Amer. politics, by the nature of its financial operations after the railroad company's stock-holders had acquired the controlling interest in its bonds.

Crediton, or Kirkton, bor. and mkt. tn. of England, in the co. of Devonshire. It is situated on the R. Creedy, 8 m. N.W. of Exeter, lying in a narrow valley between two steep hills, and is divided into an old and new tn. It was the bp. of Winfrid, or St. Boniface, in 680, and from 910 to 1049 was the seat of a bishopric, afterwards transferred to Exeter. Cromwell captured it in 1645; in 1743, and again in 1769, much of the tn. was destroyed by fire, consequently it is fairly modern in appearance. Agriculture is the prin. industry, but there are also tanneries. Shoes and under are also manufactured in C. Pop. 3500.

Credit, Social, see SOCIAL CREDIT; and also ABERRIART, WILLIAM.

Creech, Thomas (1659-1701), Eng. poet and translator, b. at Blandford, Dorset. He trans. into Eng. verse Lucretius's *De Rerum Natura* (1682), *The Odes, Satyrs, and Epistles of Horace*, and *The Idylls of Theocritus* (1684). He is best known for his trans. of Horace.

Creech, William (1745-1815), publisher and lord provost of Edinburgh. He is best remembered as being the publisher of the works of Gullen, Gregory, Henry Mackenzie, and also for publishing the second ed. of Robert Burns's poems. Burns thought highly of C. as a social companion, as expressed in his poem *Willie's Awa*, but latterly C. forfeited Burns's esteem through his avarice and

slackness in paying debts. C.'s shop and breakfast-room were the meeting place of many celebrities of that day. See J. C. Carrick, *William Creech, Robert Burns's Best Friend*, 1903.

Creed (A.-S. *creda*, from Lat. *credo*, I believe, the first word of the Apostles' and Nicene Cs.), the authorised expressions of the faith of a church, generally used liturgically. The three great Cs. of the church are very early in date, and of only one of them is the origin at all clearly known. The *Apostles' C.*, being the simplest and earliest, has the most complicated hist. In the fourth century, Rufinus dates its origin from the apostles themselves, each of whom he declares to have had a share in the composition of it. This tradition, however, resting on so doubtful an authority, is generally disregarded. It is certain that some form of baptismal confession was required at a very early date, and the nucleus of this is found in Christ's command to baptise 'in the name of the Father, and of the Son, and of the Holy Ghost.' This formula was expanded into a short form, common to E. and W., divided into the same three members as the present C., but lacking many details, such as the 'He descended into hell' and 'The Communion of Saints,' which two clauses are first found in the Gallican formulae of the fifth century. In the E. this common C. was much modified and expanded in various ways according to the heresy it was required to combat at the moment. In the W. the most important step in the development is the Rom. symbol, which has been variously reconstructed with substantial agreement by various authorities. Before this reference may be made to Irenaeus, Tertullian, and Hippolytus for earlier forms of baptismal confession, all of which show the same type of construction. The present *Apostles' C.* is a compound of Rom. and Gallican forms deriving its authority from Catholic consent. The *Nicene C.* is more definite in its hist. Throughout the second and third centuries there had been keen controversies as to the nature of Christ, and in the fourth century Arius, the great heresiarch, denied that Christ was consubstantial and co-eternal with the Father. The controversy raged throughout the Church, and for long the adversaries of the faith had the upper hand (see *ARIUS*). Athanasius came forward as the defender of the faith, and when, in 325, an oecumenical council was called by Constantine to settle the question, he was the prin. speaker. This council was convoked at Nicea, and the discussion was almost entirely on the person of Christ. The Arians were quite in the minority, but there was a large moderate party, led by Eusebius of Caesarea, who wished to describe Christ not as of the *same substance as the Father* (*ὁμοούσιος*), but as of *like substance* (*ὁμοιούσιος*). Supported by Constantine, the orthodox prevailed, and the first form of the *Nicene C.* was promulgated. At the Council of Constantinople (381) some additions were made, the divinity of the Holy Ghost being stated.

Except for one clause, the *filioque*, declaring the procession of the Holy Ghost to be 'from the Father and the Son,' the C. was now in the form in which we know it in the W. This clause was added in the fifth or sixth century, and was one of the main causes of the controversy between E. and W. which led to the Great Schism. The *Athanasian C.* was formerly believed to date from the fifth century, for its connection with St. Athanasius was never authenticated, and though a determined effort was made in the middle of last century to attribute it to the eighth or ninth century, the earlier position is more probably correct. The C. is an elaborate statement of the doctrine of the Trinity. Since the Council of Trent, the *Professio Fidei Tridentina* issued in 1564 (amended 1870) commonly known as the *C. of Pope Pius*, has practically assumed the rank of a C. in the Rom. Church. See C. A. Swinson, *The Athanasian Creed*, 1870, and *Nicene and Apostles' Creeds*, 1875; C. G. A. Harnack, *The Apostles' Creed* (trans.), 1901; and C. Barth, *Credo* (trans.), 1936.

Creedmoor, dist. of New York city, U.S.A. It stands on Long Is., and is situated in the bor. of Queen's in the co. of the same name.

Creeks, see MISKOGEOANS.

Creek Town, tn. in the Brit. colony of Nigeria, on the Old Calabar R., in W. Africa. Pop. 5000.

Creeper, name often applied to any small bird which seeks its food by running on the ground, but more properly applied only to the family *Certhiidae*, order *Passeriformes*. They have long, slender bills and dull plumage. The tail is somewhat long and square, and the feet slender.

Creeper, see CLIMBING PLANTS. *

Crees (*Cristineaux* or *Knistineaux*), important tribe of N. Amer. Indians of Algonquian stock. They number about 8000, living chiefly in Manitoba and Saskatchewan, between the Red R. and Lake Winnipeg on the E., and Saskatchewan R. on the W. Their first home was near Rainy Lake and Lake Winnipeg, but they spread further, this being largely due to the incursions of the Iroquois (seventeenth century). They are divided into Plain C. (of the Saskatchewan prairies), and Wood C. (of the forests of the Athabaskan region). The name meant 'killers,' but they are now quite peaceable and barter furs with the Hudson's Bay Company.

Creetown, seaport in Kilkendbrightshire, Scotland, at the head of Wigtown Bay, at the mouth of the R. Cree. It is noted for its granite quarries, and the people are mostly engaged in fishing. Pop. 800.

Creevey, Thomas (1768-1838), b. at Liverpool of Irish descent, was M.P. for Thetford and later for Appleby. In old age he enjoyed the offices of treasurer of the ordnance and treasurer of Greenwich Hospital, when he was described by Charles Greville as 'perfectly happy and exceedingly poor.' C. bequeathed to his stepdaughter all his papers—letters, diaries, etc.—and selections from these

were first pub. in 1903. Whilst they are of no great literary worth, they are of considerable interest to the student of the Georgian era. C. was acquainted with almost all the prominent personalities of his day, and their characters as well as the social life of the period are vividly reflected in these papers. What he thought was momentous, politically, may no longer seem so; but personalities hold their attraction undimmed and it is as a gossip, like Pepys, that he retains our affection and, like Pepys, too, C. was 'rediscovered' long after his death. See H. Maxwell (ed.), *The Crewey Papers*, 1903; J. Gore, *Crewey's Life and Times*, 1934; (ed.) *Crewey*, 1949.

Crefeld, see KREFELD.

Creighton, Mandell (1843-1901), Eng. historian, bishop of Peterborough 1891, and of London 1897, b. at Carlisle. In 1882 he pub. the first two vols. of his *History of the Papacy*, and in consequence was appointed Dixie prof. of eccles. hist. at Cambridge in 1881. Three more vols. of this work appeared before 1894. Its historical judgment and widely accurate scholarship are universally acknowledged, yet it is so impartial that Rom. Catholics and Protestants can both appreciate it. He founded the *English Historical Review* in 1886, and ed. it for five years. The following are among his works: *Life of Simon de Montfort* (1876); *The Tudors and the Reformation* (1876); *Cardinal Wolsey* (1888); *Queen Elizabeth* (1896); *Historical Essays and Reviews* (1902); and *Thoughts on Education* (1902). See L. Creighton, *Life and Letters of Mandell Creighton*, 1904.

Creil, tn. of France, in the dept. of Oise and arron. of Senlis, situated on the R. Oise, 22 m. S.E. of Beauvais. Heavy iron goods and machinery are manufactured, also earthenware, porcelain, and glass. There are large copper foundries. C. is an important railway junction. Pop. 10,700.

Crema, tn. of Lombardy, Italy, situated in the prov. of Cremona, on the R. Serio, 27 m. N.W. of Cremona. There are manufs. of lace, silk goods, hats, and linen, and a trade in bell-casting, wax, honey, etc. Flax is largely grown. C. was founded by the Lombards, and possesses an old cathedral and a castle. Pop. 12,000.

Cremation, reduction to ashes of human corpses. At the present day, when there are over forty crematoria in the United Kingdom and as many more under construction or under contemplation, it is difficult to realise that towards the end of the nineteenth century popular sentiment was either so hostile or so apathetic to this mode of burial that not one crematorium existed in England, and very few abroad. On its religious side that sentiment is not passed, and the Cremation Act, 1902, expressly exempts any minister from the obligation to perform a burial service at or after the C. of remains. On the Continent C. is by no means estab.; e.g. it was not until 1931 that it was legalised in Belgium. It prevails mainly in Japan where there are over half a million Cs. annually. In 1946 the number of Cs. in Great Britain

exceeded 50,000. There were 120 crematoria in N. America, the Cs. exceeding 136,000 (U.S.A. and Canada). In Europe there were over 250 crematoria in operation, including 125 in Germany (1939), 40 in Italy, 25 in Switzerland, 20 in Sweden, 16 in Denmark, 12 in Czechoslovakia (1939), 6 in France and only 1 in Russia. There are 10 crematoria in Australia and 4 in New Zealand. C. is by no means a modern practice, except in regard to the scientific process employed; it was the common custom among most of the natives of the ant. world, except Egypt, where embalming was in vogue, and China, where interment in the soil of that country was so involved with religious notions that it was and remains essential to send corpses to China wherever the death may have occurred. It is chiefly due to such lt. chemists and physicians as Polli and Brunetti that the whole question of C. began to be discussed in Europe in the middle of the nineteenth century. In England the matter was never really before the public until Sir Henry Thompson (author of *Modern Cremation: its History and Practice to the Present Date*, 1901), in 1873, having conducted experiments with both regenerative and reverberating furnaces according to the lt. processes, demonstrated the possibility of resolving a corpse into gases with rapidity and efficacy. The result was the formation in 1874 of a society for the promotion of C., with Sir H. Thompson as its president. In 1878 the society bought a site at Woking, but, owing to the opposition of the Home Office, the society was obliged to abstain from any attempt at practising C. In 1881, however, the legality of C. was estab. in a rather curious manner. At the Cardiff assizes in Feb., of that year a man was indicted for attempting to burn the body of his child instead of burying it. Mr. Justice Stephens directed the jury that to burn a dead body instead of burying it was not an offence unless it was done so as to amount to a public nuisance. After this the society, having acquired further funds, announced its intention to perform C., and other crematoria were soon estab. It was not until 1902 that the Act of 2 Ed. VII. c. 8 was passed to legalise and regulate Cs. By this Act burial authorities, including local authorities, maintaining a cemetery under the Public Health (Interments) Act, 1879, may provide and maintain crematoria. No crematorium may be constructed nearer to any dwelling-house than 200 yds. without the consent of the owner or occupier, nor within 50 yds. of the highway, nor in the consecrated part of the burial ground of any burial authority. Regulations were laid down by the home secretary in 1903, providing that no C. may take place until the death of the deceased has been duly registered and the written authority of the medical referee appointed for the crematorium has been obtained. The two ordinary processes of C. are carbonisation in a reverberating furnace, the body being resolved into lime dust by the direct

contact of the fire, and the noxious effluvia consumed in a second or outer chamber, and that of the Siemens regenerative or hot-blast furnace, in which the combustible gases from the body itself meet the hot air sent into the chamber containing the body, this hot air or gas being generated by burning coke in another furnace. See F. C. Fidler, *Cremation* (with bibliography), 1930; P. H. Jones and G. H. Noble, *Cremation in Great Britain*, 1931.

Cremer, Sir William Randall (1838-1908), b. at Fareham, Hampshire, was first apprenticed in the shipbuilding trade, but afterwards became a carpenter, and founded the Amalgamated Society of Joiners. The Inter-Parliamentary Conferences on Peace and on Arbitration were founded by him, and he acted as secretary to the International Arbitration League for thirty-five years. In 1903 he was awarded the Nobel gold medal and prize (amounting to about £8000), but he gave it to the League to promote its cause.

Cremerieux, Isaac Moise, called **Adolphe** (1796-1880), Fr. lawyer and statesman, b. at Nîmes. At the *coup d'état* of 1851, he was arrested and imprisoned, but became minister of justice in the Gov. of National Defence, 1870. He was afterwards one of the ministers of the delegations of Tours and Bordeaux. He resigned in 1871, and was afterwards made senator for life of the national assembly. A selection of his speeches was pub. in 1869, and he helped to compile the *Code des Codes*, 1835.

Cremonitz, see KREMNITZ.

Cremona: 1. Prov. of Italy, in Lombardy, stretching between Rts. Adda and Oglio. Mostly a fertile, cultivated region, W. of the R. Po. Area about 690 sq. m. Produces silk and other fabrics, wheat, flax, maize, rice, and wine. Pop. 370,000. 2. Cap. of above, on l. b. of R. Po. about 60 m. from Milan. Still surrounded by its old walls, it contains many interesting ant. buildings. The twelfth-century Romanesque Lombard cathedral has frescoes by Pordenone and other masters. The main façade is of red and white marble. The Torrazzo near by is the highest clock-tower in Italy, and commands a grand view of the Po valley (396 ft. high). Among the many churches are Sant' Agostino e Giacomo in Brada (1309, with paintings by Perugino), San Sigismondo (1463), San Pietro al Po (1549), Santa Margherita by Giulio Campi (sixteenth century), Sant' Agata. Other interesting buildings are the thirteenth-century tn. hall, Palazzo de' Gonfalonieri, and Palazzo Reale. C. is noted for silk, sweets, preserves (*torrone*), and stringed instruments. Its violins had an immense reputation, the Amatis, the Guarneris, and Stradivari (d. 1746), all being violin-makers. A memorial tablet still marks the house of Stradivari. The anatomist Malpighi was also b. at C. The C. school of painting flourished in the sixteenth and seventeenth centuries. Some of the chief Cremonese painters were Boccaccio, Boccacino, Bembo, the three Camis, Melone, Sofonisba l'Angu-

siola and her sisters. C. was colonised by the Romans, about 218 B.C., to command Cisalpine Gaul; in A.D. 70 it was destroyed by Vespasian, by the Goths in 540, by the Lombards in 605. It became important again in the tenth century, passing into Milan's possession in the fourteenth century. In 1535 under Sp. control; in 1814 it became Austrian, and in 1859 lt. Pop. 64,000.

Cremona, Luigi (1830-1903), It. mathematician, b. at Pavia. In 1860 he was appointed prof. of higher mathematics in Bologna Univ., and was called to the chair of higher mathematics in the univ. of Rome in the year 1873. He was vice-president of the Senate in 1897, and minister of education in 1898. He wrote sev. works, the most noteworthy being *Le Figure reciproche nella Statica grafica* (1879) and *Elementi di Geometria proiettiva* (1873).

Cremona Gardens, situated on the l. b. of the Thames, near Battersea Bridge, served as a popular place of amusement during the middle of the nineteenth century. During the summer evenings entertainments were given, and fêtes were held to provide funds for charitable purposes. They were closed in 1877.

Creoles (derived from Sp. *criar*, to create), strictly the natives of the W. Indies, S. America, and S. U.S.A., descended from the original Fr., Sp., or Portuguese, as distinguished from offspring of mixed races (mulattoes, quadroons, mestizoes), or non-lat. stock, and from negroes and aborigines. The name does not necessarily imply a coloured race, but the term is often wrongly used for negroes and others.

Creon: 1. King of Corinth who was burned to death in the fire which occurred when his daughter, Glauce, put on the garment sent to her by Medea because she had married Jason. 2. Son of Menaceus and brother of Jocaste, the wife of Laius. He governed Thebes for a short time after the death of Laius, but surrendered the kingdom to Oedipus, who delivered the country from the Sphinx. After the death of Eteocles and Polyneices, the sons of Oedipus, he once more took the reins of government. His cruelty in forbidding burial to the corpse of Polyneices, and his sentencing Antigone (q.v.) to death for disobeying his commands, occasioned the death of his own son Haemon, who was in love with Antigone. See the Sophoclean trilogy, *Oedipus Tyrannus*, *Oedipus Coloneus*, and *Antigone*. He sentenced Antigone to death because she, against his wishes, buried the body of Polyneices.

Creosote, **Creasote** (Gk. *κρῆς*, flesh, and *σωτήρ*, to preserve, so named from its ability to preserve animal substances from decay), heavy oil produced in the fractional distillation of coal tar, wood, blast-furnace, and other tars, and used extensively as a preservative for timber. It is a colourless or slightly yellow liquid, with phenolic and empyreumatic smell, sparingly soluble in water, easily in alcohol, ether, and oils. It is a mixture of phenols and phenol ethers, the chief

being guaiacol and creosols. It is a very strong antiseptic and produces local anaesthesia. It is used externally in certain skin diseases, and also internally. C. oil is that fraction of coal tar which distils between 240° and 270°. The solid naphthalene, on cooling, is removed by centrifuging, and the remanent oil is a mixture of phenols and pyridine. It is a valuable preservative for railway sleepers and telegraph poles, and it is also used as liquid fuel for boilers.

Crepis, see BARCKHAUSIA.

Crepuscularia (Lat. *crepusculum*, twilight), tribe of lepidopterous insects, including those called sphinxes or hawk-moths. They are twilight fliers, as distinguished from *Diurna* which, as the name implies, fly in the day, and *Nocturna* which fly by night. The antennae of the C. taper to the end, where they have a club which is pointed at the apex in place of the oval club of the *Diurna* (butterflies) or the filiform antennae of the *Nocturna* (moths). Stantton calls the C. of Latreille *Sphingina*.

Crepuscular Rays (Lat. *crepusculum*, twilight), appearance of rays which frequently appear when the sun is setting with clouds in the vicinity. The reflection of the light from the clouds and floating dust gives the appearance of beams of light all diverging from the sun.

Crépy, or **Crépy-en-Valois**, tn. of France, in the dept. of Oise, and the arron. of Senlis, 12 m. S.E. of Compiègne. The remains of an old castle are here. There are manufs. of fine cotton materials and coarse linen. Pop. 5500.

Créqui, anet. Fr. family of Artois, taking name from a vil. near Calais, and including (1) *Charles* (14th), *Marquis de C. de Blanchefort de Canaples* (c. 1567-1638), soldier and diplomat. Lieutenant-general of Dauphiny. In 1622 made marshal of France. Fought in It. campaigns, and was ambus. —Rome, 1633; Venice, 1634. Killed before Crema, March 17, 1638. (2) *François C. de Blanchefort, Marquis de Marines* (c. 1624-87), soldier, grandson of (1). Marshal of France, 1668. Seized ters. of duke of Lorraine, 1670. Refused service under Turenne, and was exiled. Surprised and beaten at Conzarbruck (1675), lost Trèves, taken prisoner. Returned to France, commanded army of Meuse and Moselle. In 1681 he took Luxembourg. (3) *Renée Caroline de Froulay, Marquise de* (1714-1803), b. at château of Montfleur, married in 1737, *Marquis Louis Marie de C.*, who d. in 1741. Little and plain, but learned, he attracted a literary circle, and influenced J. J. Rousseau. Formed friendship with Sénae de Meilhan. Her letters are extant, but the memoirs are a forgery.

Crescendo (Lat. *crescere*, to grow, increase). The term is used in music to denote a gradual and steady increase in volume of sound, not an increase in pace, though a C. effect is often obtained on a stringed instrument by increasing the pace of the bow.

Crescent, new moon which shows a curving rim of light, ending in points or horns which point to the left of the ob-

server. The term C. is also used when speaking of the Turkish flag, as a C. is seen displayed on that country's ensign. It is also used figuratively when referring to Turkish power, or to the Turkish empire. The Turks adopted the C. as their emblem in 1153 at the taking of Constantinople. A C. in heraldry is an honourable ordinary, being a mark of distinction for the second sons of families and their descendants. The name was also adopted for three orders of knighthood, viz.: (1) That founded by Charles I. of Naples in 1268; (2) that founded by René of Anjou in 1448; and (3) that founded by Sultan Selim III. in 1799, the first recipient of which was Lord Nelson in 1801. All three of these orders are now extinct.

Crescentia, genus of plants in the order Bignoniaceae, named after Pietro Crescenti of Bologna, who lived in the thirteenth century and wrote treatises on agric. subjects dedicated to Charles II. of Sicily. The genus consists of large trees with solitary flowers rising from the trunk or branches. *C. acule* is the culete, or common calabash-tree. It is indigenous to central America and the W. Indies. The subacid pulp is eaten by the natives and is made into poultices. The hard shell is used for a bottle, and is also made into spoons, ladles, cups, basins, and bowls.

Crescentino, com. in Italy in prov. of Novara, Piedmont, 13 m. from Turin. Pop. 5760.

Crescimbeni, Giovanni Mario (1663-1728), an It. poet and critic, joined the Jesuits' college in his native city of Macerata, and there composed his tragedy on the life of Darius and his metrical version of Lucan's *Pharsalia*. In 1679 he became doctor of laws, and in the following year returned to Rome, where he had previously studied under a Fr. priest. His *magnum opus*, *Istoria della volgar Poesia* (1698), revised in 1711, is still a standard work on the hist. of It. poetry, the *Commentaries* (1702-11) being the most valuable of his other works. Yet his country remembers him chiefly for his opposition to the artificial criteria of what was good in literature, which Marini and his admirers had estab. See G. Natali, *Atti dell' Accademia*, 1928.

Crespi, Daniele (1590-1630), It. painter, worked in the studios of Giovanni Battista Crespi and Giulio Procaccini. Pavia and Milan, his bp., contain many of his paintings, and his finest work, a series of pictures illustrative of the life of St. Bruno, hangs in the Carthusian monastery of Milan. His celebrated 'Stoning of St. Stephen' may be seen in Brera. Harmonious colouring and grouping, careful drawing, and a vigour of conception have earned for him a high niche among historical painters.

Crespi, Giovanni Battista (1557-1633), It. artist, known also as Il Cerano after his bp., was president of the Milanese Academy, instituted by Cardinal Borromeo, and attained to high distinction in his native city. A man of versatile gifts, C. was at once sculptor, painter,

and architect. His pictures are remarkable for their pleasing colour blends and their evidence of a lofty imagination, though his figures are often graceless and grotesque.

Crespi, Giuseppe Maria (1665-1747). It. painter, surnamed 'Lo Spagnuolo,' from his love of finery. He was employed by the Grand Duke Ferdinand in the Pitti Palace. His method of colouring, consisting mainly of glazing, has caused the obliteration of many of his works. Besides being a hist. and portrait painter, he was a brilliant caricaturist and did a number of etchings (after Rembrandt and Salvator). His 'Massacre of the Innocents' is at Bologna. Other works are in the Dresden Gallery (series of 'The Seven Sacraments'), Vienna Gallery ('Canaan Sings'), Florence, Leningrad, Munich, and elsewhere. His three sons were also painters. See life by H. Voss (Rome).



HAIRY BITTERCRESS

Cress, name given to various plants with acid or pungent leaves. Nearly all of these belong to the order Cruciferae, but the Indian C., *Tropaeolum majus*, is a species of Tropaeolaceae, and is known as the common nasturtium. The true genus *Nasturtium*, however, contains cruciferous plants, and *N. officinale* is the watercress of salads. Other Brit. species are *Lepidium sativa*, the common or garden C.; *Barbarea praecox* (or *vulgaris*), the winter C. or yellow rocket; *Cardamine hirsuta*, hairy bittercress; *Coronopus Ruelli*, wart or swine's C. (Swine's C. is also classified as *Senecio* *Coronopus*, and wart-C. as *S. dymalis*); Belleisle or Normandy C. (winter C., *Barbarea verna*); while the genus *Arabis* yields sev. rock-C. and *Thlaspi* three species known as penny-C.

Cressy, see CNECY.

'**Cressy**,' armoured cruiser in the Br. Navy, which gave its name to a class of six vessels, laid down in 1898. They were steel built, with a h.p. of 21,000, a displacement of 12,000 tons, and

a length of 410 ft. In the First World War the C. was a unit of the ill-fated force C. Whilst on patrol duty between England and Holland she was torpedoed and sunk together with the *Hogue* and *Aboukir* on Sept. 22, 1914, just off the Dutch coast. This event estab. beyond doubt the power of the submarine, which had previously been underestimated.

Crest, tn. in S.E. France, dept. Drôme, and arron. of Dec. 20 m. S.S.E. of Valence by rail. A centre of silk-worm breeding and silk-spinning, with manufs. of paper, woollens, cotton goods, leather, cement, and beetroot sugar. Pop. 5300.

Crest (Lat. *crista*, a plume or tuft), comb on the head of an animal, whence any tuft or the top of anything, e.g. of a helmet or a hill. (1) In heraldry, the figure or ornament which originally surmounted the helmet of a knight. The practice spread until the C. became an almost indispensable part of a coat of arms, was used in armorial bearings, and as a seal. In spite of the popular misconception the C. is in no way necessary to a coat of arms, which is complete without it. Cs. in helmets were secured in place by rivets, or by lacing with wire or thong. A C. was never actually placed on top of a coronet, as shown in some erroneous modern drawings. The wreath or torse of a helmet was not a lacing, but an ornamental device to conceal the line of junction between C. and helmet. (2) C., or creste, in architecture, an ornamental finish to the ridge of a wall or building, usually conventional foliage, originally in stone, although later it was frequently in metal work. To-day crestings often consist of plain or gilded cast-iron railings. Such forms of decoration were early borrowed from the E. by Romanesque architects. It was common in Gothic, and is still general on the Continent. Exeter Cathedral has a leaden C. of fleurs-de-lis.

Creston, co. seat of Union co., Iowa, U.S.A. It lies 1312 ft. above the sea, and is the junction for two branches of Chicago, Burlington, and Quincy railways. Pop. 3000.

Creswell, Sir William (1850-1933). Australian admiral and organiser of the modern Royal Australian Navy, b. in Gibraltar. In 1891 he was appointed commandant of the Australian Naval Defence Force. When the Australian Commonwealth was estab. he was the first director of its naval forces.

Creswick, small tn. in the co. of Talbot, in Victoria, Australia. It lies on the Tullaroop Creek, 11 m. N. of Ballarat in the centre of a fruitful well-forested country. The neighbouring alluvial gold and quartz mines are the chief source of its prosperity. Pop. 3700.

Creswick, Thomas (1811-69), Eng. landscape painter, began to draw and sketch as a schoolboy at Hazelwood, near Birmingham, and in 1828 went to London to study art. Though C. preferred to give his canvases such fanciful names as 'The Shade of the Beech Trees,' 'A Greenwood Stream,' and 'A Shady Glen,' etc., he usually painted faithful repre-

sentations of the rural scenery he had enjoyed in his native Yorkshire, in N. Wales, and Cornwall. From 1848 onward C. tried his hand at seascapes, the best of which are 'A Squally Day,' and 'Wind on Shore,' but he produced his most attractive pictures when he painted those calm and cheerful country scenes, which bring to the spectator a sense of peace and rest, an effect aided by the smooth placidity of the painting and the grey tones of the greens and blues.

Cretaceous System, so called because its best-known and most characteristic rock consists of white chalk. The C. rocks in England lie to the E. and S.E. of the Jurassic rocks. They extend from the Yorkshire coast through E. Yorkshire, Lancashire, the E. Anglian cos., and so in a S.W. direction to Hampshire and the Isle of Wight, and also eastwards through Surrey, Sussex, and Kent to the coast between the mouth of the Thames and Brighton. They are only found in patches in Scotland and Ireland, but are considerably developed on the Continent, being found spread over large areas in France, Belgium, Holland, Denmark, Sweden, Germany, Poland, and Russia, while also largely developed in S. Europe. They lie under younger formations, being more or less concealed, over a large part of this area, however. In England and France the main cretaceous development is white chalk, in Germany this is replaced by limestones, shales, sandstones, etc., while in S. Europe there is a great development of massive marine limestone (hippurite). The system extends over America, Canada (where there are the chief oil-producing centres), and Greenland, Australia, and New Zealand, while a large development occurs in the Deccan in India.

layers of flint running parallel to the bedding planes in the upper portions. Under the microscope it is found to consist of perfect or broken fossils. Fragments of shells occur plentifully, but it is mainly composed of the remains of foraminifera (*q.v.*).

Fossils of the Cretaceous System are similar to those of Jurassic times. Since the cretaceous strata of Britain are almost all of marine origin, the remains of plant life are chiefly found in the S., where the beds are of fresh-water origin, and consist chiefly of ferns and conifers. The upper C. rocks of Germany, however, furnish plant remains of extinct species of maple, oak, walnut, beech, laurel, etc. Amongst animals the protozoa are abundant. As has been mentioned, the chalk is composed largely of the remains of foraminifera, while sponges, sea-urchins, star-fishes, and brachiopods were common. Bivalves, such as *Hippurites*, etc., were very numerous, while ammonites are the most characteristic fossils and were the most abundant. Among the fishes were various kinds of shark, while the majority of the genera of fishes existing to-day (Teleostei) were existing then. Further, huge land reptiles (dinosaurs), winged reptiles (*Pterodactylus*), and serpent-like reptiles (*Mesosaurus*) were common then, and toothed birds, such as *Ichthyornis* and *Hesperornis*, were also existent in the W. hemisphere in this epoch.

Conditions under which Cretaceous rocks deposited.—The Lower C. rocks were formed under similar conditions to the Upper Jurassic. At this time most of Britain and Ireland existed as dry land, while a large riv. from the N. had its estuary lying over the S.E. of England. The delta deposits of that riv. formed the Wealden beds. Then the land sunk and

CONTINENTAL CRETACEOUS.	EQUIVALENT ENGLISH STRATA.	
Danian	(Wanting)	
Senonian	Upper Chalk	} Upper Cretaceous
Turonian	Middle Chalk	
	Lower Chalk	
Cenomanian	Chloritic Marl	} Upper Greensand
	Upper Greensand	
Albian	Gault	
Neocomian	Lower Greensand	} Lower Cretaceous
	Wealden	

The lower strata of the C. consist of sand and clay. In the S. of England, where the Weald clay is followed by the Lower Greensand, the beds are of fresh-water origin, whereas in Yorkshire they are of marine origin. Above these is a mass of clay known as Gault in the S.E., while in Norfolk, Lincolnshire, and Yorkshire, this is replaced by a thin deposit of lime known as the Red Chalk. These are marine deposits, as also are the Upper Greensand and the Chloritic Marl (*q.v.*). Then lying over these are the most extensive of the C. rocks—the Chalk, which retains the same general characters wherever it exists in England. It is usually a white earthy limestone with

marine conditions prevailed, while the Gault was laid down, although the area was not too remote for mud to be deposited from the rivers. Then as the depression continued, the coast receded until a little earthy deposit was added, and then the Chalk was deposited. Similar conditions at present prevail in the Caribbean Sea, where sediment is being piled up which may form a rock similar to chalk.

Crete (Gk. Κρήνη, Lat. Creta, Turkish Kirit, It. Candia, New Gk. Κάρι), or Candia, large is. in the Mediterranean Sea, considered as the most southerly part of Europe. Its N.W. extremity, Cape Grabusa, is 60 m. S. of Cape Malea in Greece, and its N.E. extremity, Cape

Sidero, is 110 m. from Cape Krio in Asia Minor. C. is situated between $34^{\circ} 50'$ and $35^{\circ} 43'$ N. lat., and between $23^{\circ} 30'$ and $26^{\circ} 20'$ E. long. Its length from E. to W. is about 155 m., its width varies from 7 to 35 m. Its area is a little under 3330 sq. m. (Some estimates give only 2950 sq. m.) The coasts are generally steep and unfavourable for harbourage, though the N. coast is greatly indented. Some of the prin. bays, from W. to E., are those of Kisanos, Canea, Suda, Retimo, Candia, Malea, Mirabello, and Sitia. On the N. are likewise the capes of Spada, Drepano, Stauros, Panagia, and Sidero (N.E.). The chief capes on the S. side, which is less indented, are Krio (S.W.) and Lithinos. The only large bay is that of Messara. The largest is, in the neighbourhood is Gaydo (anct. Claudia), about 40 m. S.W. of Cape Lithinos. The surface is extremely mountainous, especially in the W., where the massive range of the White (or Madaras) Mts. culminates in Mt. Theodoros, at a height of close on 8000 ft. In the centre of the is. is a lower group, but it attains to a greater height in the almost isolated Mt. Psiloti (anct. Ida), over 8000 ft. in height, the highest peak in the is. Further E. are the Lassithi Mts. (chief peak Mt. Christos), and the Sitia Mts. with Mt. Kavousi. There are a few plains of which the largest is that of Messara, extending from the coast to the Lassithi range over an expanse of nearly 400 sq. m. Next to this comes the plain of Canea in the N., through which flows the R. Platanos (anct. Iardanos). From the nature of the country it is evident that the streams are mere mt. torrents. The mountainous country is cut up by deep and precipitous ravines in which snow remains throughout the year. Among the mts. are fertile plateaux, which furnish excellent pasturage during the warm season of the year. The climate is mild and salubrious, and is one of the best in Europe. The air is pure and fresh as a general rule, but the fierce southerly wind, known as the *sirocco*, sometimes raises the temp. to 100° F. Earthquakes are experienced at times, and on Feb. 14, 1930, serious damage was caused by a severe shock, which was felt in Athens, Cairo, and over the Aegean Sea. Many buildings in Candia were shaken to their foundations, a number of people were injured, and ten vill. were destroyed.

Flora and Fauna.—The forests with which C. was once covered have now disappeared almost entirely, but the cypress is still found extensively among the hills, while the lower slopes of the mts. and many of the valleys are covered with olive woods. Though in many parts the soil prevents the growth of vegetation, in others it is very luxuriant. Oranges and lemons are extensively cultivated and exported, while the carob-tree yields the carob beans. Sheep are bred in many parts of the is., and the native breed of mules is very famous. The most important wild animal to mention is the Cretan ibex or goat. Large numbers of these animals are still found in the higher regions.

Minerals.—The volcanic origin of the is. would lead one to the opinion that it is rich in minerals, but nothing much has yet been done to verify this supposition. Gypsum, slate, and iron have been found, and it is probable that considerable quantities of lead, manganese, sulphur, and other minerals also exist.

Population, Religion, and Chief Cities.—The pop. is approximately 336,000. The vast majority of the inhab. of C. are Christians, and there is a steadily declining number of Muslims, to whom the Gks. are hostile. The Jewish pop. is numbered only in hundreds. Under the Venetians, the pop. had been estimated at 250,000, but this number diminished after the conquest of the is. by Turkey. The pop. then rose until the Gk. revolution of 1821, after which came a great fall. Since that time it has again increased to the present number. All the inhab., whether Christian or non-Christian, speak Gk. and the great bulk of the inhab. belong to the Gk. Orthodox Church; the is. being governed by a synod of seven bishops, with their president, the metropolitan of Candia, dependent on the patriarch of Constantinople. There are about 3500 Gk. churches on the is., and four Rom. Catholic churches. Education is nominally compulsory. The chief cities are Canea, the cap. (26,600), Candia or Heraklion, the former cap. and see of the archbishop of C. (39,000), and Retimo (Rethymno) (10,000), all on the N. side of the is.

Archaeology.—In the Homeric age there were over a hundred flourishing cities throughout C. The remains of many of these are of great interest archæologically. Extensive excavations have been carried out during the nineteenth century, and through the discoveries made by Schliemann at His-sarlik (Troy) and at Mycenæ, interest in the origin of prehistoric Gk. civilisation was revived. The art and culture thus brought to light were termed Mycenaean, covering the later Bronze Age. This civilisation was but a late and decadent stage of a highly advanced and wide civilisation centred in C., of which the great period may be dated from the end of the third millennium B.C. to the first half of the second millennium B.C. This civilisation, now generally known as Aegean, covers all that period of E. Mediterranean culture before the beginning of the historic period of Gk. hist., usually dated 800 B.C. Perhaps the most striking feature is that writing, hieroglyphic and linear, was in use, a confirmation of the old legend that the Phœnicians did not invent but only changed the alphabet. Evidence of this civilisation has been found as far W. as Spain, Sardinia, and Marseilles, near Venice in the Adriatic, largely in Sicily, throughout the Aegean, in Cyprus, and in Palestine. Trade with Egypt was frequent from the earliest time. Before the discoveries, mainly due to Sir Arthur Evans, Gk. hist. before the Dorian invasion was a waste of legends and myths. The tale of Minos, the law-giver, the tribute of boys and maidens from Athens to the minotaur, of Theseus, Ariadne, and the labyrinth built by

Dædalus, all have now a foundation of fact. In 1834 was found, 4 m. from Candia, the site of Cnossus, the anct. metropolis; in 1851 Spratt discovered many ruins, and in 1878 Minos Kalokairinos came on large jars and remains of pottery identical with 'Mycenean' art. In 1894 Evans explored part of E. and Central C. Evidence was forthcoming of a script entirely unknown and undecipherable. In 1905 Evans began the excavation work at Cnossus, and unearthed a vast palace, forming a large

handsome youthful cup-bearer with tightly fitting belted drawers has a profile almost Gk. in outline, with no Semitic or E. traces. Immense stone and earthenware jars, beautifully decorated, were found in large quantities, probably used for storing oil and corn. Clay documents, inscribed in the unknown writing, abound, as also do lead and clay seals, probably used for documents of more perishable nature. From the shrines it is seen that the worship was mainly that of a great mother goddess, with fetish images of



L.N.A.

THE HALL OF THE DOUBLE AXES IN THE PALACE OF MINOS, CNOSSUS

square, occupying nearly six acres, with a paved central court, halls, and ante-chambers, connected by passages well built and arranged. A small council chamber, in which is a gypsum throne, has a bath chamber attached; there were upper stories and wide stone stairs; the palace revealed a most modern system of drainage, with water-closets, a stone shaft carrying the water from the roofs to flush the drains, latrines, and other sanitary conveniences. Terra-cotta pipes of modern pattern connect with the main drains. Fresco-painting of an advanced and realistic style decorated the walls, many representing bulls and bull-fights, one of a procession in life-size of women with tight-belted waists and flounced skirts, curiously modern in appearance. The costume is distinctly marked from that of historic Greece. A fresco of a

pillar and dove, of double-headed axes and of serpents. Enamel work and inlay are of high artistic excellence; a gaming-table of gold-plated ivory with crystal plaques set in silver and blue enamel is a beautiful example. Ivory figures of exquisite workmanship show the plastic skill. The highest perfection is found in the pottery: the polychrome on white or dark ground, 'Kamarea' ware, preceding that of dark painting on a lighter ground. The decoration, markedly distinguished from the early Gk. geometric patterns, is designed in fine representations of flowers, aquatic plants, and animals. A small columnar sanctuary used in the worship of the Minoan goddess as Lady of the Nether World was found in 1929, and the W. portico and E. portico were explored. A winding staircase from the sanctuary led to a lustral basin in the depths of the

earth; while a runnel in the E. bastion was found to lead in a series of parabolic curves, broken up at intervals by small settling tanks, to a large tank for purposes of washing. Sherds were also found, which dated from about 1900 B.C., and wall-paintings formed by the impressions caused by a small sponge dipped into yellow paint and then applied to the wall. The restoration of a fresco of Minoan octagonal shields and spiral bands was accomplished.

In June 1930 an outer entrance system was seen and explored. A wall dating from about 2100 B.C., composed of massive blocks, enclosed an acropolis, houses, and part of the palace court. Two round walled pits disclosed sherds dating from the Middle Minoan period. A movable stone altar, with a relief of the sacred horns and double axes, was a notable discovery. These anct. remains were found to have been built over houses of a still more distant period, with stucco pavements, stairways, and household relics in wonderful preservation. Many vessels decorated with snake designs were revealed. Remains of other palaces and shrines have been discovered throughout the is., at Gortyna, Hagia Triada, Zakro, Phastos, Palaikastro, and elsewhere. The central date of this great and historic civilisation may be put at about 3000 to 2000 B.C. The periods are divided into Early Minoan, Middle Minoan, Late Minoan, each being divided into three. Some terrible catastrophe, probably from the sea, overwhelmed this great civilisation; a revival took place, only to be followed by another wave, probably connected with the Dorian migrations in Greece; from this blow the great civilisation never recovered.

History.—Recent archaeological investigations prove that C. was the home of an advanced civilisation even before the Bronze Age, and that the Iron Age saw the end of this civilisation. The earliest written histories of C. are much intermixed with myth, and in the old Gk. traditions the is. bulks largely. The Homeric poems speak of 'hundred-citied Creta' as peopled by people of mixed Cretan, Achaean, and Doric descent. The early legends centre mainly on the name of Minos, who reigned as king of C. at the city of Cnossus. He is spoken of as the founder of Cretan sea power. From his name is derived the term 'Minoan,' applied to the early period of C.'s greatness. The Cretans had, however, no kind of unity among themselves, and hence the islanders never figure largely in Gk. hist. They took no part in either the Persian or the Peloponnesian wars, being continuously engaged in internal struggles, which Polybius tells us were carried on with unprecedented animosity. The three leading cities at this time were Cnossus, Gortyna, and Cydonia. In the first century B.C. the Cretans incurred the enmity of Rome, by an alliance with Mithridates, and this was increased when the islanders joined arms with their neighbours of Cilicia in piratical expeditions. An attack was made on C., and the is. was subdued in 66 B.C. by

Q. Metellus, then surnamed Creticus. It then continued as a Rom. prov. till the year 823, belonging after the div. of the empire to the Byzantine emperors. During this latter period it formed part of the prefecture of Illyria. In 823 it was taken by the Saracens, under whose rule it became a slave market and a centre of piracy. In 960 it was recaptured by Nicephorus Phocas and remained under the Byzantine sovereigns until 1204. Then, on the capture of Constantinople by the Lat., and the estab. of the Lat. empire, C. was allotted to Boniface, marquis of Montserrat, who sold it to the Venetians. The Venetian rule in C. was most oppressive, and many revolts took place but none were attended with success. During this period Candia was made the cap. of the is., to which it gave the official title in Venetian language of 'Candia,' a name which the is. still retains among the Its. In 1645, the Turks made an attack on the is., and the discontent of the Cretans made their conquest an easy one. Only the cap. held out for long, but the siege of this city, though intermittent, is said to be the longest on record. It lasted for twenty-four years. From this time until the Gk. revolution, C. remained subject to the Porte, but its lot was indeed unfortunate. The first of a regular series of revolts broke out in 1770, but this was ruthlessly put down before it could spread far. The gov. grew worse rather than better, and fresh rebellions occurred in 1813 and 1821. In this last the Christian pop. succeeded in possessing themselves of the whole country, when 7000 Albanians were imported from Egypt. Even with this aid, however, the Turks were not able to reduce the is. to submission till 1824. The great powers (France, England, and Russia) refused to allow the cession of C. to Greece, and for ten years the is. was under the rule of the Egyptian governor. This was the best period in Cretan hist., but it soon came to an end. Further revolts occurred, but in 1878, after the treaty of Berlin, when fresh insurrections stirred up by Greece were in progress, the pact of Halepa was drawn up, largely by the efforts of the Brit. consul in the is. This pact gave the is. almost entire autonomy, but party struggles were so fierce and the intrigues so persistent that the condition of the country grew gradually worse. In 1889 the Porte sent a military governor to the is., whose rule practically abrogated the former treaties. The powers, however, refused to intervene. No improvement yet showed itself, as the Christians resolutely refused to submit to Muslim misrule, and in 1894, the powers persuaded Turkey to appoint a Christian governor. But in the years since 1889, large sums of money had been drawn from C. to Turkey, and financial troubles ensued. This, and the recall of the Christian governor, led to the outbreak of 1896. The powers becoming more favourable to C., the sultan assumed a conciliatory attitude and assented to a scheme of reform presented by the insurrectionists, which practically put the gov. into the same condition as the Halepa

pact had done. Things now seemed to be settled, but the Porte did all in its power to prevent the reforms promised. In 1897 a Gk. force landed in C. and attacked the Turks. The is. was again aflame, but Greece and C. were alone, for the powers sided with Turkey. Complete autonomy was granted, but annexation by Greece was declared impossible. The powers compelled assent to this decision by force of arms, and the failure of the Gk. attack on Turkey ratified it. In 1898, the Turkish forces were withdrawn from the is., and Prince George of Greece was nominated as high commissioner of the is. A small section of the people disliked his arbitrary policy and raised a revolt in 1905, proclaiming the annexation of the is. to Greece. This insurrection was put down by the powers. In 1906 the powers gave to King George of Greece the right to propose the high commissioner, and he appointed Alexander Zaimis. His administration was most successful, and the powers were soon able to remove their troops. In 1911 it was announced that no more high commissioners would be appointed to office. On Oct. 11, 1912, Cretan deputies were admitted to the Gk. Chamber, and the is. was annexed by Greece. The treaty of London, signed in Dec. 1913, confirmed this act and C. has ever since been under Gk. rule. In the Second World War C. was captured by the Gers. between May 21 and June 2, 1941 and held the is. until late 1944. See also succeeding article. See R. Pashley, *Travels in Crete*, 1837; T. A. B. Spratt, *Travels and Researches in Crete*, 1867; J. H. Freese, *Short Popular History of Crete*, 1897; J. Balkie, *The Sea-Kings of Crete*, 1913; Sir A. Evans, *The Palace of Minos at Knossos*, 1921-36; G. Glasgow, *The Minoans*, 1923; J. Charbonneau, *L'Art égéen*, 1929; and H. T. Bossert, *The Art of Ancient Crete*, 1937.

Crete, the Battle of (May-June 1941). With characteristic speed the Gers. attacked C. only three weeks after the Brit. evacuation of Greece in the Second World War (see GREECE, SECOND WORLD WAR, CAMPAIGNS IN (1941)). They captured the is. within the space of twelve days (May 21 to June 2) and by June 3 the Brit. and Anzac garrison had evacuated the is., leaving some 6000 men unaccounted for. The brief campaign was a triumph of Ger. thoroughness in organisation and ingenuity. It afforded the first instance in modern warfare of the capture of a country exclusively by airborne troops, dropped by parachute, and opposed by a strong garrison and a navy in full control of the sea. The Mediterranean Brit. fleet played its part successfully in so far as it was able to disperse Ger. convoys, sink many boatloads of Ger. invading troops, and prevent any landing from the sea in force on Cretan soil. But their losses were grave, comprising two cruisers (*Gloicester*, *Fiji*) and four destroyers (*Juno*, *Greyhound*, *Kelly*, and *Kashmir*); and later, the cruiser *York*, which was being repaired in Cretan waters, was also sunk. The lack of fighter-plane support and the narrow

waters in which the ships were engaged made them an all too open target for the attacks of Ger. bombers. By the aid of hundreds of dive-bombers, operating from the captured and newly organised airfields in Greece, only 80-100 m. from Crete, the Gers. were not only able to give adequate protection to their airborne troops, which were 'ferried' over in a ceaseless stream of transport planes and gliders, but to crush the spirit of the people and deliver annihilating attacks on the Brit. and Anzac garrison. It was found impossible to give the garrison any adequate protection from the air, and such fighter planes as had been operating from Maleme aerodrome in C. were withdrawn owing to the weight of the attacks on the aerodrome. It was out of the question to send fighters from Egypt, the distance being 400 m. from C.

The Gers. landed their airborne troops regardless of losses. Large numbers of their parachutists were wooden dummies sent to divert the Brit. fire. Most of a force of 3000 men who dropped in the all-important Suda Bay region and in the Candia area were killed, as well as a detachment which reached the outskirts of Canea (May 21). The next day came more swarms of Ger. parachutists. Ger. bombers sprayed the is.'s airfields with explosives for hours at a stretch. Troop-carriers landed on the beaches. Yet for some time the Brit. and Anzac troops, under Gen. Freyberg, V.C., and aided by Gk. and Cretan hillsmen, held the airfields with the courage born of despair. Great numbers of parachutists were killed and many troop-carriers and gliders were destroyed by gunfire in the air. After another day's intense fighting, the Gers. gained a foothold at the one important aerodrome, at Maleme, 10 m. S.W. of Canea, and also in the tn. of Iraklion (Candia) 70 m. E. of Canea. There were further landings of airborne Ger. troops in the succeeding days, but on a much smaller scale. The R.A.F. delivered heavy attacks on enemy positions and aircraft in C. and Brit. heavy bombers attacked the aerodrome at Maleme as soon as it had fallen into Ger. hands.

It is probable that the Brit. resistance was unexpectedly prolonged in the eyes of the Gers., for, having failed to capture the three chief ports, Canea, Retimo (Rethymno), and Iraklion, at the start of the invasion, they bombed those tns. for sev. hrs. (May 24). King George of the Hellenes and the Gk. Gov., who had arrived in C. on April 23, when the Gers. were overrunning Greece, had, in the meantime, left the is. and reached Egypt. In their flight from the is. the king and his party had to take cover every few yds. from Ger. planes which roared so low overhead that the airmen's faces could be seen. They therefore made for the mts. and sheltered for three days in a shepherd's cave, after which they succeeded in embarking. On May 26, the Gers., flinging in fresh troops and always regardless of heavy losses in men and aircraft, renewed their offensive, concentrating their attack on the Maleme

area in a drive towards Canea. On that day at least twenty-four Ger. aircraft of all types were destroyed and numerous others were hit by Brit. fighters. But, despite the severe losses inflicted by the R.A.F., airborne reinforcements continued to reach the Gers. Often the parachutists landed on hills in almost perfect circular formation, reaching the ground safely after only a very short drop from mass-produced plywood gliders. Many had their faces painted green in the hope of camouflaging themselves against the verdure of the hills. All were supported

But the end was now in sight; for the Gers. had captured the port and aerodrome at Heraklion and were threatening the vital position of Suda Bay. Already the Brit. command was learning a lesson in modern warfare demonstrated in practice. The Ger. parachutist was a man superior in small arms. He usually had a tommy-gun. This he could use solely for defence if necessary, but primarily for offence. He was continuously protected, supported, and directed by Ger. aeroplanes. As in Norway, Finland, France, and Greece, experience was proving the



THE TOWN OF HAGIA DEMEA, CRETE

E.N.A.

by the most sustained and intense bombing by dive-bombers, and this co-ordination was impressively assisted by a revolutionary use of wireless. The Ger. forces in the is. were now enlarging their penetration into the Brit. defences, so that, in the area W. of Canea, the defending forces were compelled to withdraw to new positions. Laden enemy transports were sunk by the R.N. as well as two enemy E-boats; but it was on this day (May 27) that the Admiralty announced the loss of two cruisers and four destroyers though many survivors had been landed. Two days later the Brit. forces had withdrawn to the E. of Suda Bay in the face of new attacks by a still more heavily reinforced enemy. More than a hundred Ger. aircraft were successfully attacked by the R.A.F. on the beaches and this no doubt saved the fleet from further losses.

superiority of the bomber used as frontal artillery. It could ferret out anything in the way of defence, though its destructive was less than its paralyzing power, which, however, was great. It had become obvious that the Gers. contemplated the task of taking C. as principally a matter for aeroplanes and tommy-guns. Apart from landing heavy mortars and light field-pieces, the Gers. broke the ground with tommy-guns and planes.

After twelve days of what till that date had been the fiercest fighting in the war, the Brit. High Command decided to withdraw from C. It had become evident that the Brit. naval and military forces could not operate indefinitely in and near the is. without more air support than could be provided from the bases in Africa. Apart from Gk. and It. soldiers and some civilians who were taken with the Brit. imperial forces, some 17,000

Brit. troops were evacuated by the beginning of June, and nearly half the garrison had become casualties. Continuous patrols of R.A.F. and S. African fighters protected the warships and merchantmen in the task of evacuating the troops. Other aircraft dropped food and medical supplies to units isolated in the is., while heavy bombers continued to destroy Ger. planes on the ground in Maleme and elsewhere. Great hardship was endured by the Maoris and other troops in their nightmare journey of 60 m. through the hills. Many reached the shores with boots torn to shreds, only half-clad, starving, and often with grave untended wounds. No quarter had been given in the fighting and none was asked. So confused was the situation that fantastic things kept happening. The Gers., for instance, continued to drop all manner of supplies on top of the fleeing Brit. troops under the impression that they were their own men—condensed food, four-inch mortars in long cylindrical cases, two-pounder field-guns, unpacked and attached to triple parachutes, and tins of petrol.

Thus ended in a phantasma of incredible scenes, the epic battle for C. The chances of the defence succeeding against a ruthless airborne invasion covered by dive-bombers inevitably turned upon a copious supply of heavy equipment, and this it was apparently impossible to grant. The dive-bomber, in fact, smothered the small artillery and anti-aircraft equipment. It was objected by contemporary critics that, inasmuch as the Brit. authorities had been in occupation of the is. for seven months before the invasion, they ought to have had a longer-sighted appreciation of the kind of attack that they would have to meet, and that they too lightly assumed that the Gers. could not succeed without the heavier material that could come only by sea, while they did not foresee that airborne troops, aided by dive-bombers, could not be overcome without adequate supplies of tanks and heavy guns. The greater anxiety was felt in the outcome of this historic battle not only from its obvious effect on the defence of Egypt, but from the consideration that the invasion of C. was, in some sort, an illustration of, perhaps even a try-out or prelude to, an invasion of Britain. But there were other and competing claims for anti-aircraft guns, especially for ships in the battle of the Atlantic, and for the ports, cities, and factories of Britain. When the Brit. entered C. they took steps to defend the anchorage of Suda Bay as an important naval base, and to develop the aerodrome near the bay, and to provide both base and aerodrome with the largest quantity of anti-aircraft guns which it was possible to divert from the other strategic points in the Mediterranean. The B. of C. was, in fact, 'only one part of the very important and complicated campaign which was being fought in the Middle E., and to select one particular sector of our widely extended front,' for criticism and debate was a 'misleading

method of examining the conduct of war' (Mr. Churchill in the Commons, June 10, 1941). Moreover, Germany had a great advantage in the matter of moving her air force from one side of Europe to another. Brit. aircraft had to be packed in crates and transported by sea round the Cape of Good Hope. Yet, despite all these drawbacks, the Brit. Gov. and chief of staff (Gen. Wavell), and other general officers of the staff, decided to defend C., hoping that some 50,000 good troops (actually there were 27,000 Brit. and 26,000 Australian and New Zealand troops) would be able to destroy the parachutists and glider landings, while the navy destroyed the seaborne attacks. But there was a time limit: the action of the navy in maintaining the N. seaguard without adequate air defence was bound to be very costly, and, when a certain proportion of naval losses had been incurred, the safeguard had to be withdrawn. Similarly, when it was clear that the fighter-planes had no reasonably safe landing ground they, too, had to be withdrawn. More air-fields were not prepared because there were insufficient guns to defend them. Had the Brit. long-range bomber-fighters been able to take part in the battle from the start the result might have been different; the margin of defeat was in fact a narrow one. But even at this time the Ger. air force greatly outnumbered the Brit. and allied air forces, and, striking from the centre, was able to concentrate overwhelming strength at any point on the periphery of the Reich's defences.

Yet it was not all gain on the one side and all loss on the other. The twelve-day interval helped the Brit. to regain control in Iraq (*q.v.* and see *infra*), and it gave time for the arrival of further reinforcements in the Near E. A pusillanimous refusal to defend C. would have had, too, as lamentable an effect on Amer. public opinion and on that of other neutrals, as a refusal to defend Greece. It was the soundest strategy to compel Germany to fight for every inch of the soil she coveted and to make her victories as costly as possible. Some 3,000 Gers. were drowned in trying to cross the sea, and at least 12,000 were killed or wounded on the is. The Ger. Luftwaffe suffered extraordinary losses. Above 180 fighter and bomber aircraft were destroyed, and at least 250 troop-carrying aeroplanes, and that at a time when Brit. air strength was overtaking the Ger. Immediately, however, the situation in the E. Mediterranean was changed, to the disadvantage of the Allies. The navy now had to operate in narrower waters, and between recaptured Cyrenaica and captured C. a new Seylla and Charybdis had come into being—one reason more for holding grimly on to Tobruk. Serious, too, was likely to be the effect upon Germany's use of the Dardanelles. With O. athwart the Aegean entrance, it would be easier for the Gers. to develop coastal traffic through the Dardanelles and Gk. territorial waters up to Trieste. But, in the sequel, it became evident that Germany's main

preoccupation was the protection of the right flank of their armies, which were now being disposed for attack along the whole Russian frontier from Finland to Rumania. See Dilys Powell, *Remember Greece*, 1941, and A. Moorhead, *Mediterranean Front*, 1942.

Crétineau-Joly, Jacques (1803-75), Fr. historian whose *Histoire de la Vendée* (1840-42) is a standard work, whilst he was an authority on the relations between the Rom. Catholic Church and the State. For his *Histoire religieuse, politique et*

trading tongues. They have receding foreheads, large hands and feet, and rickety limbs, while they usually have a dwarfish body, with thick, dry, loose skin, and a protuberant abdomen. The treatment consists in the careful administration of some part or all of the thyroid gland of the sheep. See GOITRE and MYXŒDEMA.

Cretonne (perhaps from Creton, a vil. in Normandy, where linen goods were manufactured), was originally a Fr. fabric, strong and white, with linen weft and



Yvon

THE RIVER CREUSE AT BUSSEAU, NEAR GULRET

The railway viaduct is 166 ft. high and 1000 ft. long.

littéraire de la compagnie de Jésus (1844-1846), he was able to avail himself of reliable and hitherto unpublished records, yet critics deprecate the work on the ground of its personal bias.

Cretenism, congenital disease, causing idiocy or arrested mental development, together with bodily deformity, always associated with absence or atrophy of the thyroid gland. The connection between goitre, myxœdema, and C. is close. Myxœdema, however, comes on in adult life, and is associated with a destructive change in the thyroid gland, although the removal of the gland will bring on a similar condition. An enlargement of the gland causes goitre, while a loss of the functioning of it seems to be the cause of C. It is found all over the world, and in all classes of society, it is most common in the deep-lying valleys, where light and free circulation of the air are impeded. Thus of Crete and largely in the lower valleys of reinforced Pyrenees, and other mountain ranges of Europe. It is rarely met by the R.A.F. above 3000 ft. Cretenism no doubt saves, obscene, and shameless, loose.

open mouths with pro-

hempen wool. The material known as C. to-day is a stout cotton cloth, with a crape, basket, or wave figure produced on the loom, and a pattern printed sometimes on both sides, when the two designs usually differ. It is unglazed, and was introduced about 1860 as a substitute for the thinner chintz, which was largely used for curtains and for covering chairs, etc. Inferior qualities have a weft of cotton waste and patterns printed in bright, fugitive colours.

Creusa: 1. A daughter of Heecuba and Priam, king of Troy. The wife of Æneas, and mother of Ascanius, she was parted from her husband during the tumult following on the fall of Troy, and finally saved by the goddess Cybele, who made her a priestess. In the Virgilian story she appears as a phantom before Æneas, uttering dramatic prophecies of the disasters and eventual glory that awaited him in Italy. 2. Called also Glauce, a daughter of Creon, king of Corinth. Jason conceived a passion for her, and Medea, his wife, jealous of her supplanter in Jason's affections, sent her as a wedding gift a poisoned garment which brought

about an agonising death. 3. A daughter of Erechtheus, king of Athens, and the mother of Janus and Ion by Apollo. She exposed Ion at his birth and married Nuthus, to whom she bore no children. The Delphic oracle told them to take Ion for their son, who had meanwhile been brought up by the Pythian goddess at Delphi. Suspecting his true identity C. determined to poison Ion, but the latter discovered her plot, and she herself was only saved from death by fleeing at once to Apollo's altar.

Creuse, riv. and dept. in the centre of France. The riv. rises near Fémiers and flows about 150 m. through the depts. of Creuse-et-Indre, Vienne, and Indre-et-Loire, joining the Vienne, a trib. of the Loire, about 12 m. N. of Châtelleraulx. The dept. is formed of the old Haute Marche, and parts of Berry and Limousin. It is drained by the R. C., and its surface is mountainous, and its soil thin and unproductive. In the S. hilly dist. there are wide stretches of pasture land. The climate is moist and the cold very severe in winter. Chestnuts form a large proportion of the food of the pop.; hemp, potatoes, and fruit are also grown, while cattle, sheep, pigs, and goats are reared on the pasture lands. Coal is mined at Ahun. There are some manufs. of carpets and hangings, and there are dye-works at Aubusson and Felletin. Wooden shoes and hats are made in large numbers. C. is divided into the arrons. of Aubusson and Guéret. Cap. Guéret. Area 2163 sq. m. Pop. 188,600.

Creusot, Le, tn., 34 m. N.W. of Mâcon, in the arron. of Autun and the dept. of Saône-et-Loire, central France. The neighbouring coalfield and iron ores have caused a number of metallurgical and engineering works to spring up (including the celebrated Schneider-Creusot cannon works), which are connected together by over 30 m. of railroad. It was on Oct. 17, 1942, that ninety-four unescorted Lancaster bombers of the R.A.F. heavily hit the Schneider arms works at Le C.—then in Ger. occupation. The attacking force lost only one machine. The armament works were hit again on June 19, 1943. The tn. fell to the Allies soon after the landings in S. France in the autumn of 1944. Pop. 24,100.

Creutz, Gustav Filip, Count (1731–85). Swedish poet and diplomat, b. at Angårds in Finland. In 1762 his *Allis och Camilla* was pub. in a collection of poems. This pastoral idyll, for many years regarded as the crowning ornament of Swedish poetry, possesses, like C.'s other inimitable pastoral, *Daphne*, a grace of style and melody which led admiring critics to call the author 'the last artificer of the language.'

Creuzer, Georg Friedrich (1771–1858). Ger. philologist, whose earliest and best-known work, *Symbolik und Mythologie der alten Völker, besonders der Griechen* (1810–1812) was an ingenious attempt to carry back the mythology of Homer and Hesiod through the Pelasgians to an E. source. His hypotheses, however, were pulled to pieces by Hermann, Voss, and others.

Among other learned works are his complete ed. of Plotinus and treatises on classical philology in 1854.

Creuznach, see KREUZNACH, BAD.

Crevalcore, com. 12 m. N.E. by E. of Modena, in the prov. of Bologna, in Emilia, Italy. Pop. 12,800.

Crèvecoeur (Fr. for heart-breaker), Dutch stronghold, which was important in hist. from 1587 to 1794, commanding a central strategic position at the confluence of the Dieze and Maas. 4 m. N.N.W. of Bois-le-Duc ('S Hertogenbosch'), in N. Brabant, Holland.

Crèvecoeur, vil. of France in the dept. of Nord, situated on the R. Escaut or Scheldt, 5 m. S. of Cambrai. Pop. 2100. It was entirely destroyed during the First World War.

Crèvecoeur-le-Grand, vil. of France in the dept. of Oise, 12 m. N. of Beauvais. It possesses an old castle with picturesque gardens. There are manufs. of woollen goods and pottery. Pop. 2100.

Crèvecoeur, Michel Guillaume Jean de (pseudonym, J. Hector St. John) (1735–1813), Fr. writer, b. near Caen, France, and educated at a Jesuit school, also spending some time in England. He went to New York in 1759 and became naturalised as an Amer. citizen in 1765, having acquired a farm near Chester, New York. Returned to France 1780–83, 1790–1813. His fame rests on his *Letters from an American Farmer* (first pub. in England 1782)—a series of charming essays giving a farmer's reactions to the life and issues of the times. These *Letters*, with their glowing descriptions of the Amer. frontier, are said to have had an appreciable influence on emigration to America which sometimes led to disillusionment. Other works were *Loupe dans la haute Pensylvanie et dans l'état de New York* (3 vols., Paris, 1801); and *Sketches of Eighteenth Century America*, ed. by H. L. Bourdin, R. G. Gabriel, and S. T. Williams, pub. 1925. An ed. of the *Letters*, with an introduction by Ludwig Lewisohn, appeared in 1904. The township of St. Johnsbury, Vermont, founded 1785, was named in honour of C., who was Fr. consul at New York and a benefactor of Vermont. Lives by Robert de Crèvecoeur (Paris) 1889, and J. P. Mitchell (New York), 1916.

Crevillente, tn. in the prov. of Alicante, Spain. The surrounding country produces fine melons, wine, wheat, olives, and esparto grass, and oils, carpets, and flour are manufactured in the tn., which, with its orange-groves and dwarf palms, its cañi and its rocks, presents a very keen and attractive appearance. Pop. 10,000.

Crew (probably from *accree*, reinforcement, from O.F. *accree* and *accroître*, to increase) is used of a body of men who associate together to carry out some special work, and especially of men employed on a ship, that is, of the petty officers and seamen, exclusive of the captain and commissioned officers. In the royal navy the C. is divided into over 175 grades, the chief being that of the able-bodied seaman. On merchant ships,

both sailing vessels and steamers, Cs. are now smaller than they were in consequence of rapid improvements in masting, rigging, etc., in mechanical appliances and generally in the economy of work and power. The Merchant Shipping Acts, especially the elaborate statute of 1894, protect the rights of seamen. Brit. consuls in seaports abroad have numerous duties with regard to Brit. merchant shipping. Thus a consul may make inquiry into all agreements and accounts of the Cs. and into all offences and misdemeanours. Further, he must provide subsistence for shipwrecked, discharged, or abandoned sailors, and listen to any complaints with regard to food, etc. Since the repeal of the Navigation Acts a master has been able to man his ships with sailors irrespective of qualification, nationality, age, or strength. Frequently in these times half the Cs. on Brit. ships are foreigners and Lascars, almost equally divided. By the Act of 1907, however, it is stipulated that no seaman may be shipped without some acquaintance with the Eng. language. The term *aircrew* is applied to the complement of a military aircraft.

Crewe, municipal bor. (incorporated in 1877), with an acreage of 2193, in the C. parlt. div. of Cheshire, England. Lying 158 m. N.N.W. of London, it owes its commercial importance to the fact that it is a locomotive building centre of Brit. Railways (formerly of the London Midland and Scottish Railway Co.), that it connects with the S. the main lines feeding the N. of England and Scotland, and that it is a junction for the lines passing through the mining dists. of Wales and the Black Country of Staffordshire. From C. it is possible to go direct to Liverpool and Manchester, Holyhead, and N. Wales. N. Stafford, and Hereford, besides London. It is mainly inhabited by workers in the service of the railway, which gave the tn. its schools, its mechanics' institute, including science and art classes, and a library, and also Victoria Park. The company further provided an electric power station, a number of subterranean roads to facilitate goods traffic, and a series of postal offices in which the mails for Scotland and Ireland are sorted. Before railways existed C. consisted of three or four farm houses, one of which with the date 1639 still remains. The railway works are the largest in the world. Pop. 46,500.

Crewe, Robert Offley Ashburton Crewe-Milnes, first Earl of (1858-1915), Brit. statesman, the son of Baron Houghton. In 1899 he married Lady Margaret Primrose, daughter of the earl of Rosebery. In politics he always followed the Liberal cause. In 1908, he was appointed secretary of state for the colonies. In 1910 he was secretary of state for India and was ambas. to France 1922-28. Secretary of state for war, 1931. Leader of the Liberal party in the House of Lords 1936-44. During his tenure of office as secretary of state for India he was responsible for the important changes announced at the Delhi Durbar, including

the removal of the cap., and the abandonment of the partition of Bengal. Publications: *Stray Verses* (1889-90), and *Lord Rosebery* (1931).

Crewel Work, embroidery worked in coloured worsted yarns called crewels. This kind of wool is especially suitable for larger pieces of needlework, such as tablecloths, tapestries, and various furniture covers. Finer silks have tended to supplant crewels in the field of artistic needlecraft.

Crewkerne, tn. of England, in Somersetshire, in a fertile valley, 16 m. S.E. of Taunton. Manufact. of horsehair cloth, sail cloth, and dowlas are carried on. The grammar school was founded in 1499. Pop. 3500.

Cribb, Tom (1781-1848), champion pugilist, started life as a bell-hanger, and became in turn dock labourer, sailor, and coal porter. The important years of his life were given up to fighting, and throughout his many contests he sustained only one defeat, that being at his second fight in 1805. Among his more famous adversaries were Jean Belcher, whom he defeated twice (in 1807 and 1809), the second time at Epsom, when the stakes were 200 guineas; Bob Gregson and Molmeux, the Amer. coloured champion, whom also he worsted on two occasions (in 1810 and 1811). His great fighting days over, C. sank to the position of publican in the Haymarket, whence he twice emerged into public notice, once when he sparred in Pall Mall before the emperor of Russia (1814), and again when in the dress of a page he guarded Westminster Hall at the coronation of George IV.

Cribbage. This game is usually played by two persons with a pack of fifty-two cards. Sixty-one points constitute a game, and these are scored by means of two pegs on a board containing sixty-one holes. The value of the cards is as follows: the kings, queens, knaves, and tens all count as ten, the rest of the cards having their face value, the aces counting as one only. The points of the game are scored by means of fifteens, sequences, pairs, by the knave being turned up (usually this point is termed 'one for his nob'), and by making thirty-one, or getting nearest to that number ('one for go'). The cards are shuffled and cut in the usual way; the player cutting the lowest card wins the cut and proceeds to deal. This he does by dealing out five alternate cards face downwards; the non-dealer has the right to score three points at any period of the game to make up for the advantage of the deal. The players having reviewed their cards now proceed to place two from their hand on the table; this is called making the 'crib.' The remainder of the pack is then cut by the non-dealer, and the top card turned up. The cards are then played alternately, starting with the non-dealer, and each card is 'called' as it is played, e.g. A, the non-dealer, plays a five, and calls five, the dealer B plays a six and calls eleven. A then plays a four and calls fifteen (for this he scores two points).

B then plays a ten and calls twenty-five. A, finding that he cannot play without exceeding thirty-one, calls 'go' and B scores 'one for the go,' since he also cannot play without exceeding thirty-one, or, on the other hand, plays a four (or a card of a value which will not make the total score thirty-one), and scores 'one for the go' just the same. Should the scores reached be exactly thirty-one, the player first reaching that score marks two points for game. The non-dealer then counts up his score (if any) from his hand, and then the dealer counts first his hand and then, turning up the crib, the crib. The card which has been turned up earlier in the game is a neutral card and counts to the non-dealer, or dealer, if it is any good. Pairs are reckoned up in the hands, or at the end. Sequences: any three cards or more forming a sequence count one point for each card. Also if by replacing one card already counted by another in the same hand of similar value but different denomination, another sequence can be reckoned, this is done, e.g. three (hearts), four, and five count as a sequence, whilst if the player holds also a three (clubs), this forms another sequence and is counted. Fifteen a.c. counted during the play, whenever the value of all the cards played comes to fifteen, and is also counted in the hands or the crib afterwards; in the hands or the crib any combination of cards which amounts to fifteen may be scored, two being counted for each combination. A flush is counted only in the hands or in the crib. In the hands if all the cards are of the same suit this counts a flush, and one is counted for each card, whilst if the card turned up is of the same suit also, one more is counted. In the crib, however, the flush does not count unless the cards in the crib are of the same suit as the card turned up.

Crib biting, see under HOUSE (DISEASES).

Cricieth, picturesque vil. with ruined castle and fortress, situated on Cardigan Bay in Carnarvonshire, Wales. It is a favourite seaside resort. Pop. 1400.

Crichton, James (1560-85), commonly called The Admirable. Romance and tradition have been so busy with his name that it is difficult to form any just estimate of either his life or his character. He was b. at Elioek, Dumfriesshire, Scotland, and educated at the college of St. Salvator, St. Andrews, under Buchanan, where he had the young king for a fellow pupil. In 1575 he took his degree of A.M. with great honour and proceeded to Paris. There he served in the army for a short time, and in the univ. of Paris issued a universal challenge to all men upon all things, to be held in twelve different languages. In spite of spending the interval in music and dancing, on the appointed day he vanquished all his opponents. From Paris he went to Genoa, and repeated the feat, and thence to Venice in 1580. In Venice he won the friendship of the grandson of the famous printer, Aldus Manutius, and challenged all the scholars to feats not only of learning, poetry, and linguistic fluency, but of swordsmanship as well. Tradition says

that he later proved his exceptional ability as a swordsman by slaying in combat a renowned gladiator at Mantua. In 1584 he pub. an elegy on the death of the archbishop of Milan, Cardinal Borromeo, and odes in honour of his successor and of the duke of Savoy, and in 1585 he pub. a vol. of Lat. poems. In the same year he was appointed as the tutor to the duke of Mantua's son, but was stabbed by his pupil, whether through jealousy or in a drunken brawl is unknown. That he was a prodigy was acknowledged by men of some weight, although, owing to his youth, it was improbable that his learning was of any depth, or his accomplishments of more than surface excellence. See Sir T. Urquhart, *Discovery of a most Esquisite Jewel*, 1562; T. H. Ainsworth, *Crichton*, 1837; and life by D. Irving.

Crichton-Browne, Sir James (1840-1938), commissioner in lunacy, attended Glenalmond, and later Edinburgh Univ., where he obtained in 1862 his M.D. degree. From 1875 he was the lord chancellor's visitor in lunacy, and acted as vice-president and treasurer of the Royal Institution from 1889. Besides being the recipient of many honorary degrees, he pub. a number of treatises on nervous and mental diseases, and, in 1932, *The Doctor's Afterthoughts*.

Cricket. Although the present game is of comparatively recent date, the origin of the pastime goes back to the dim mists of the past. The Saxons had a game called *creag*, which they played with a bent, wooden bat, and in the reign of Edward I., mention was made of the game in the wardrobe account of the king for the year 1300. It was said to have been played in Surrey in the middle of the sixteenth century, and is alluded to in Phillips's *Mysteries of Love and Eloquence*, which was pub. in 1658; and in an old book pub. in 1672 it was stated: 'Maldstone was formerly a very prophane town, inasmuch that before 1640 I have seen morrice dance, cudgel playing, stoolball, cicketts, and many other sports openly and publickly on the Lord's Day.' In the *Postman* for July 24, 1705, there is a notice to the effect that a C. match 'will be plaid between eleven gentlemen of the west part of Kent and those of Chatham for eleven guineas a man.' In 1711 Kent played all England, and in a copy of the *Evening Post* for Aug. 7, 1729, is the following quaint entry: 'On Tuesday was played a cricket match on Kennington Common between the Londoners and the Dartford men for a considerable sum of money, Wager and Betts, and the latter beat the former very much.' The nobility and even royalty were enthusiastic patrons of the game, and large sums of money were wagered, and in 1735 the Prince of Wales and the earl of Middlesex brought two teams together for a bet of £1000. In 1746 Kent again played all England, and this is the first match of which the full score has been preserved, the co. winning by one wicket. In 1747 Surrey played all England; in 1754 the first co. match was played between Sussex and

Kent. The Hambledon was the first club to be formed, and flourished about this time. It was started in 1750 in Hampshire, and had its ground on Broad Halfpenny and Windmill Downs. It was the cradle of modern C., and took the lead in all matters pertaining to the game. David Harris and Wm. Beldham were the most famous players of that old-time club, as batsman and bowler respectively. In 1774 the first written rules were drawn up. In the early days wickets consisting of only two stumps were used, and it was not until the close of the eighteenth century that the third was instituted. At first there was no limit to the size of the bat, which was shaped rather like a club. Single-wicket matches were at one time very popular and often played for high stakes, but now they are practically never seen. In the early days the score was kept by cutting notches on a stick, one for each run. The Hambledon Club continued till 1791, when it was disbanded, but the newly formed Marylebone Club (started in 1787) took its place as leader of the C. world, a position which it fills to this day. The first ground of the M.C.C. (as the club is popularly known) was in Dorset Square, Marylebone, and then Regent's Park, but in 1814 it moved to St. John's Wood, the ground of Thomas Lord, which has ever since been known as Lord's. The M.C.C. is regarded as the governing body of the game. Its committee is responsible for the laws of the game, which must be approved by a two-thirds majority of the members. It was the M.C.C. which first sponsored touring sides from this country and guaranteed any losses, and it still does so. Full ordinary membership is normally acquired by nomination at fourteen and election fifteen to twenty years later. No professional could become a member of the M.C.C. until in recent years a number of retired professionals, who had rendered notable service to the game, were elected to honorary membership. The total membership of the M.C.C. is about 7000.

The earliest writers on the game were Nyren, Lambert, and Pycroft, and their books are very curious and interesting, and show how different the game was in their day. All bowling was at one time underhand, and the introduction of the round-arm deliveries was at first viewed with great disfavour by the Marylebone Club. It was not until about 1825 that this method of bowling became at all general. It was considered dangerous and led to the introduction of leg-pads and batting gloves, things quite unknown in the old days. The game continued to progress in popular favour, and in 1845 the I Zingari Club was formed. From that date the game has advanced by leaps and bounds, till nowadays it has become so scientific that were the ghosts of the early players to return they would hardly know it, much less be able to play it. In 1865 overhand bowling was sanctioned, and this made a great difference in the game.

The modern game is played with eleven

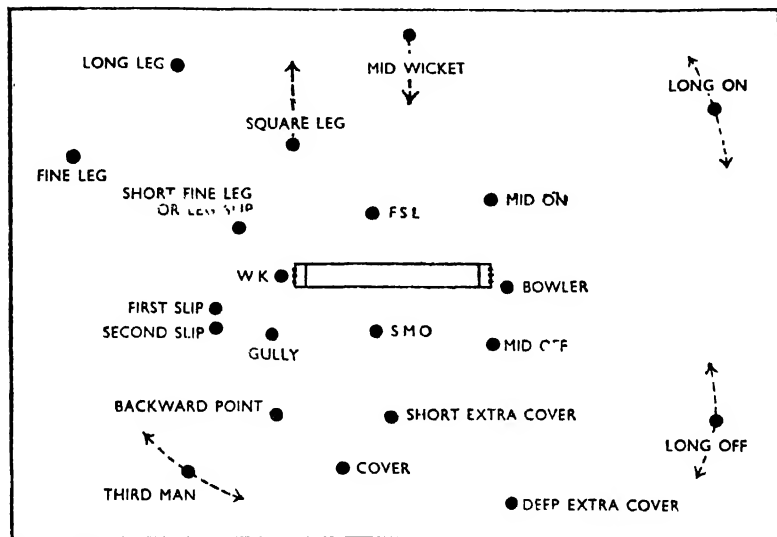
men on each side. There are three stumps, 28 in. high (out of the ground), and the wicket 9 in. wide. The wickets are pitched 22 yds. apart, and surmounted with two balls each, 4½ in. in length. The ball weighs 5½–5¾ oz., and a full-size bat is 38 in. by 4½ in. at the widest part. Two batsmen are at the wickets at once, the object being to score as many runs as possible, one run being scored every time the batsmen exchange ends. The batsmen can be out in nine different ways: (1) being bowled; (2) being caught; (3) being stumped; (4) leg-before-wicket (in 1937 it was ruled that a player could be adjudged out if he intercepted an off-side pitched ball, which would have hit the wicket); (5) hit wicket; (6) obstructing the field; (7) wilfully hitting the ball twice except in defence of the wicket; (8) being run out; (9) handling the ball.

Many variations occur in the placing of the field, according to different bowlers. It is the wicket-keeper's duty to prevent an unfit ball from passing him; if he fails to do so it is a *bye* and on it the batsman may score a run. Sometimes the wicket-keeper is aided by another man straight behind him called *long stop*, but in good-class C. this practice has died out. Should the ball pass the wicket-keeper it can be fielded by *first slip* or *fine leg* who stand behind the wicket-keeper to right and left respectively, assuming that the batsman is playing right-handed. To the right of first slip stands *second slip*; on the batsman's right stands *gully* (a forward slip), *point*, or *backward point*, on the off side; *cover point* is further to the right and front. *Mid-on* and *mid-off* are near the bowler, on the on and off sides; while behind the bowler and often the furthest fielders from the batsman are *long-on* and *long-off*. Other placings are shown in the diagram opposite. These are the usual positions, but a captain may place his men where he will. Bowling takes place alternately from each wicket in series of six deliveries (in Australia the over consists of eight deliveries). This series is called an *over*, and a *maiden over* is one in which no runs have been scored. At the end of each over the fielding team takes up the corresponding places in regard to the new bowling point. The umpires are the sole judges of every point that may arise, and their decision is final; no umpire is allowed to bet on the game.

Various changes were made in the laws of C. as from 1943; the latest state of the laws will always be found in the *Wisden Cricketer's Almanack*. In allowing a fielding substitute a captain may specify where he may not field, instead of where he may field. It is a fallacy to suppose that a substitute may not keep wicket. This has often been allowed and, subject to consent, it may still be allowed. The captain may now agree to dispense with the new ball (under the new ball rule, the new ball can be taken after sixty-five overs) at the start of an innings. The term the pitch has been defined as the ground between the wickets, but the term wickets

is now restricted to the stumps and bails. Previously to the changes, if a wicket fell within two minutes of time, the batting side had the unilateral option of continuing the game or not; but either captain may now demand that the last over of a match be finished—a change that may help to reduce the number of drawn matches. Regarding the 'no-ball' law as far as the position of the bowler's back foot is concerned: for years umpires had disregarded the rule that the foot should be 'grounded,' because most medium to fast bowlers lift their back foot before delivery.

expanded to cover two points which were not explicit in the old interpretation: the striker can be out if the ball strikes him above the top of the stumps, provided it would have hit the wicket. The law also provides, for the l.b.w. decision in the case of a full pitch (i.e. a ball which does not strike the ground before reaching the batsman). There are also new points in the laws dealing with run out and stumping by the wicket-keeper: he can take a ball in front of the wicket for the purpose of stumping or catching provided it has previously touched the striker's bat or



FIELDING POSITIONS

The diagram is not a field setting, but shows the positions in which the nine fieldsmen, apart from bowler and wicket-keeper, can be disposed.

W.k., wicket-keeper; F.S.L., forward short leg or silly mid-on; S.M.O., silly mid-off.

The licence had become a traditional custom and the new law recognises it, so that the umpire is only required to 'no-ball' a bowler if his back foot touches or crosses the bowling crease either on the ground or in the air before the ball leaves his hand. The old interpretation of the laws directed an umpire to regard the wicket as down if the ball was just disturbed without falling; but now the ball must fall from its position on the top of the stumps for a wicket to be down. As regards the practice of batsmen returning the ball to the fielding side before it becomes 'dead' and without being asked to do so the umpire, if there is an appeal for handling the ball, has only one possible verdict to give under relevant laws, that is 'out.' For this reason, all players should avoid the practice. The leg-before-wicket law has been

person and provided he does not interfere with the striker's right to guard his wicket. Stumped is now confined to cases in which the striker is definitely not attempting a run. In no case can he be stumped off a no-ball. But if he attempts to run he can be run out as before the changes. Finally, a remedy is provided for an attempt by the batsmen to change ends by stealing a run during the bowler's run up and delivery: now, as soon as the batsmen have crossed in any such ill-oft attempt the umpire will call 'dead ball' and send the batsmen back to their starting points.

Organisation of First-class Cricket.—First-class matches take three days to play, but the great majority of club matches are one day or half a day only. Test matches (i.e. inter-imperial) are allotted 3-6 days,

but the final match, if it is the deciding game, may be played to a finish. The M.C.C. has power to say which Eng. co. teams are termed 'first class,' but the number of seventeen has remained unaltered for many years. They are Derbyshire, Essex, Glamorgan, Gloucestershire, Hampshire, Kent, Lancashire, Leicestershire, Middlesex, Northamptonshire, Nottinghamshire, Somerset, Surrey, Sussex, Warwickshire, Worcestershire, and Yorkshire. These compete for the co. championship, each co. having to play twenty-eight matches. In the championship twelve points are given for a win, these being divided in the event of a tie, while in an unfinished match four points go to the side leading on the first innings. The M.C.C., Australians, S. Africans, W. Indians, Indians, and in England both Oxford and Cambridge Univs., are counted as 'first-class' C. teams. A man can be eligible to play for his co. in two ways, either by birth or residence, the latter having to be two consecutive years before the season. This rule applies to amateurs and professionals alike. A cricketer may qualify for one co. by residence, and at the same time play for another co. Apart from the test and co. matches the chief events of the C. season in England are the matches between Gentlemen and Players, Oxford and Cambridge, and Eton and Harrow.

Great Cricketers and Records. As regards the more personal side of the game, one of the most famous players the world has produced was Dr. W. G. Grace, who for nearly forty years took an active part in first-class C., and was top of the batting averages twelve times. Altogether he scored 217 centuries, 126 of these being in first-class C., and his total number of runs was 54,896. He is, however, rivalled by the Surrey professional, Jack Hobbs, who had scored 197 centuries in first-class C., when he retired in 1931. He surpassed Grace's record in 1925 with a seasonal aggregate of 3024, including sixteen three-figure innings, then a record number. He played a great part in bringing the Ashes back to England in the year 1911. Prince Hanjirahji was another notable cricketer, and during the years 1890-1900 was the finest batsman in the world. A. C. MacLaren held the record of the highest individual score, which is still the highest in Eng. C.; he made 424 for Lancashire against Somerset at Taunton in 1895. At present the record is 452 runs, scored by D. G. Bradman (knighted in 1949) for New S. Wales against Queensland at Sydney, in 1929-30. But MacLaren's 424 is still the highest score in the world under the conditions—which were a five-ball over and a three-day match. Ponsford's 429 in 1922-23 was made for Victoria against the weak Tasmanian eleven in time-unlimited C., with the eight-ball over; his 437 in 1927-28 and Bradman's 452 (not out) in 1929-30 were both made off a weak bowling side of Queensland, both under the eight-ball over and sev. days' play conditions. C. B. Fry, once captain of England, was a great batsman,

as well as a grand all-round athlete, and in his career he scored over 30,000 runs. P. F. Warner was another Eng. captain, and a fine batsman. His *Book of Cricket* is an interesting personal record of the game, besides being a fundamental exposition of the art of bowling, fielding, and captaincy. Among the professionals must be mentioned the Surrey pair, Abel and Hayward. The latter's record for the highest number of runs scored in a season (3518) stood unbeaten until 1917, when it was surpassed by Denis Compton's 3816 and W. J. Edrich's 3539. Among other cricketers may be mentioned: G. Gunn and A. Shrewsbury of Nottinghamshire; A. P. Freeman of Kent, who



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DENIS COMPTON

in 1928 took 301 wickets—a world record; G. Hirst and W. Rhodes of Yorkshire—the veteran Rhodes returned in 1926 and did much to win the Tests for England; the Foster brothers of Worcester (H. K. and R. E.); B. J. T. Bosanquet of Middlesex, inventor of the googly; R. H. Spooner and R. Tyldesley of Lancashire; L. C. H. Paludet of Somerset, K. L. Hutchings of Kent, the Hon. F. S. Jackson of Yorkshire, and J. T. Hearne of Middlesex. M. W. Tate, the bowler, H. Sutcliffe, and W. R. Hammond, D. Compton, and W. J. Edrich (three 'all-rounders'), are among great players of more recent years. T. Hayward, E. Hendren, C. P. Mead, P. E. Woolley, E. Tyldesley, W. R. Hammond, D. G. Bradman, L. E. G. Ames, and A. Sandham have all obtained over a hundred centuries. To mention a few other C. records, it may be interesting to note that the highest partnership in co. C. for first wicket is 555, made by P. Holmes and H. Sutcliffe, for Yorkshire against Essex, in 1932. The highest recorded partnership for second wicket is that of B. B. Nimbalkar and K. V. Bhandarkar (455) playing for Maharashtra against W. India States, 1948-49; for third wicket,

D. Compton and R. T. Simpson (399) playing for M.C.C. against N.E. Transvaal, 1948-49. W. G. Grace took 2876 wickets during his long career, and the highest number has been W. Rhodes with 4188. But F. R. Foster and S. F. Barnes will probably be remembered as the greatest bowlers England has ever produced. Among the wicket-keepers, E. Pooley's record of eight catches and four stumpings in one match for Surrey in 1868 has only been equalled by D. Tallon (Queensland), who dismissed twelve batsmen in one match in 1938. At the top of the seasonal aggregates is A. P. Freeman with 304 wickets in 1928; while



W. J. EDRICH

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one of the most remarkable bowling analyses has been that of H. Verity, who at Leeds in 1932 took ten wickets for ten runs. The highest total in first-class C., 1107, was made by Victoria against New S. Wales at Melbourne, in 1926. In England the highest is 903 for seven wickets, made by England in 1938. The lowest score is twelve by Oxford, when playing the M.C.C. in 1877, and by Northamptonshire, against Gloucestershire, in 1907. Victoria were once dismissed for fifteen when playing against England in 1903. Test match records: *Australia*: 729 (6 wickets declared), at Lords, 1930; 701 at the Oval, 1931; 674 against India at Adelaide, 1948; 649 at Sydney, 1947; 600 at Melbourne, 1924-25. *England*: 903 (7 wickets declared) at the Oval, 1938; 658 (8 wickets declared) at Nottingham, 1938; 636 at Sydney, 1928-1929; 627 (9 wickets declared) at Manchester, 1934. Highest individual scores above 350: Sir D. G. Bradman, 452 (not out) at Sydney, 1929-30, and 369 at Adelaide, 1935-36; W. H. Ponsford, 437 at Melbourne, 1926, and 429 at Melbourne, 1927-28; A. C. MacLaren, 424 at Taunton, 1895; C. W. Gregory, 383 at Brisbane,

1906-7; C. Hill, 365 (not out) at Adelaide, 1900-1; L. Hutton, 364 at the Oval, 1938; V. M. Merchant, 359 (not out) at Bombay, 1943-44; R. Abel, 357 (not out) at the Oval, 1899. Examples of rapid scoring are the feats of G. L. Jessop, who in 1907 made 191 out of 234 in 14 hours, being surpassed only by Alletson of Nottinghamshire, who played against Sussex at Hove in 1911. In 90 min. he hit 159 out of 227, but his first 142 runs out of 152 were hit in 35 min.

Cricket in the Dominions.—An Eng. touring team visited Canada in 1859, but C. has never flourished in the Amer. continent except in a few communities which have their devotees. The first visit to Australia was in 1861; and in 1880 the first Australian team came over here, and was beaten in the only Test match played. But in 1882 at the Oval Australia triumphed, and it was from this match that the expression 'the Ashes' arose, the *Sporting Times* publishing a satirical obituary lamenting the death of Eng. cricket. Since then visits of both teams to each country have been made. In all, 153 (1948) Test matches have been played between England and Australia, of which Australia have won 65, England 56, and 32 have been drawn. Among the best known of the Australian cricketers may be mentioned two of the finest batsmen that country has produced: Victor Trumper, who once hit up 50 in 5 min., and Don Bradman, who, although equalled in skill, has not been surpassed in the will to score runs; M. A. Noble, a splendid all-round cricketer; George Giffen, the Grace of Australia; Clem Hill, perhaps the finest left-handed batsman of any period; J. J. Darling, another left-hander; F. R. Spofforth and H. Trumble, Australia's greatest bowlers; W. Armstrong, V. Ransford, W. Bardsley, G. C. Macartney, S. E. Gregory, C. V. Grimmett, W. H. Ponsford, A. Jackson, S. F. Barnes, and A. Morris. C. in Australia has a universal popularity comparable only to that enjoyed by soccer in England. It is organised on an inter-state basis, and the sides compete for the Sheffield Shield. The S. Africans are comparatively new as a cricketing power, for the first Eng. team as such to visit that country was that of 1907. Altogether sixty-nine Test matches have been played, of which England have won thirty-one, S. Africa twelve, and twenty-six have been drawn. The Test match which lasted ten days at Durban, 1939, was the longest in C. hist. (scores: S. Africa, 530, 181; England 316, 654 (5 wickets)). The season 1912 was unique in the hist. of the game, for the Triangular Tournament between England, Australia, and S. Africa took place then. Nine matches in all were played, three between England and Australia, three between England and S. Africa, and three between Australia and S. Africa. England won the tournament and the actual results were as follows: England v. Australia: England, 1; Australia, 0; drawn 2. England v. S. Africa: England, 3; S. Africa, 0; drawn 0. Australia v. S. Africa: Australia, 2; S. Africa, 0; drawn 1.

Three Test matches were played against India in 1934, two of which were won by England and one by India. In 1937-38 five matches were played by Lord Tennyson's team in India, of which three were won by his team and two by India. An Indian team visited England in 1946—four matches were played, one being won by England, while the remainder were drawn. Test matches have been played by the W. Indies against England, Australia, and India, the first series being against England in 1928. New Zealand also sends representative teams to England, Australia, and S. Africa. The Test matches between England and Australia in Australia, in 1932-33, were remarkable for the unfortunate 'body-line' bowling controversy caused by the Eng. fast bowler Larwood, developing the 'leg theory' manner of bowling. The outcome of his success in forcing the batsmen to

English Game (anthology), 1948; and *Wisden Cricketer's Almanack* (ann.).

Cricket, name applied to members of the family of orthopterous insects known as Gryllidae, which is very closely allied to locust family. The species are noted for their long and slender antennae, hind legs formed for jumping, wings folded closely lengthwise, tarsi usually three-jointed, and a long ovipositor in all the females but those of the sub-family Gryllotalpinae. Many of the species are wingless, and it is the males only which make a chirping sound by rubbing the wing-covers on one another. They are widely distributed, and all are herbivorous but the carnivorous Gryllotalpidae. *Gryllus campestris*, the field C.; *G. domesticus* or *Achely domestica*, the house C. (Milton's 'cricket on the hearth'), and *Gryllotalpa vulgaris*, the common mole-cricket, are well-known representatives of the family.



ADELAIDE OVAL CRICKET GROUND

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be caught out by a field well packed on the leg side led to the Victorian Cricket Association in 1933 passing a rule empowering the umpire to ban any bowler whom he considers to be bowling with a view to intimidating the batsman. In the same year the M.C.C., in order to check fast short bowling on the leg side, resolved that any form of bowling which was obviously a direct attack on the batsman would be an offence against the spirit of the game and, in the following year, ruled that the type of bowling regarded as a direct attack on the batsman consisted in 'persistent and systematic bowling of fast, short-pitched balls at the batsman standing clear of his wicket.' See also BRADMAN, Sir D. G.; GRACE, W. G.; HAMMOND, W. R.; HAYWARD, T.; HILL, C.; HOBBS, J. B.; RANJITSINGH, K. S.; WOOLLEY, F. E. See J. Nyren (ed. by E. V. Lucas), *The Hambledon Men*, 1907; P. F. Warner, *The Book of Cricket*, 1911, 1934, and *Lord's, 1787-1945*, 1946; E. W. Swanton and H. S. Altham, *History of Cricket*, 1926, 1947; N. Cardus, *Days in the Sun*, 1929, and *Cricket*, 1930; W. J. Lewis, *The Language of Cricket*, 1934; D. B. Jardine, *Cricket*, 1936; J. T. Hankinson, *Cricket for Schools*, 1946; G. D. Martineau, *The Field is Full of Shades*, 1946; E. L. Roberts, *Test Cricket Cavalcade*, 1947; Sydney Smith, *History of the Tests*, 1947; G. Broadribb, *The*

Crickhowel, tn. of Wales in Brecknockshire, situated in the Usk valley. It possesses a Norman castle, belonging to the duke of Beaufort. About 2 m. N.E. of the tn. is a hill named Crug-llwyel, from which the name C. is derived. Pop. 6700.

Cricklade, mrkt. tn. of England in the co. of Wiltshire, situated on the Thames, 7 m. N.W. of Swindon, and 42 m. N. of Salisbury. It was formerly an important tn., having Anglo-Saxon associations. The industries are purely agric. It is endowed richly with charities, and possesses sev. educational establs. Pop. (with Wootton Bassett) 1300.

Crief, police bor. of Porthshire, Scotland, lying 18 m. to the W. of Perth. Here there are manufactories of woollen and worsted, cotton and linen goods, but the tn. is known chiefly as a health and pleasure resort because of the purity of its air. Many tourists visit the terraced ft. and Dutch gardens of Drummond Castle, the keep of which was built in 1490. Up to 1770 a great cattle fair was held at C., when its 'kind gallows' punished the highland cattle lifters. Pop. 6300.

Crikvenica, tn. of Croatia, Yugoslavia. A tourist centre of the Croatian littoral, 22 m. S. of Trieste.

Crillon, Louis des Balbes de Berton de (c. 1541-1615), Fr. soldier, surnamed le Brave, served his apprenticeship for

war under the famous Francis, duke of Guise, then the mirror of all military virtues. The valour displayed by C. at the siege of Calais and the taking of Guines won for him many fat livings, which he gave to the keeping of learned priests. At Dreux and Moncontour he was again to the fore, and at the battle of Lepanto, in spite of wounds, he was chosen to hear the tidings of victory to the king. Shocked at the Bartholomew massacres, as a staunch Catholic he nevertheless fought at the siege of La Rochelle (1573), but when Henry of Navarre came to the throne he gladly fought his battles. His last days were passed in pious exercises at Avignon.

Crime. In Great Britain the ann. averages of all Cs. known to the police (excluding traffic offences) in the forty years preceding the Second World War increased from about 81,000 to 150,000—an increase which partly corresponds to the increase of pop. over that period, but Cs. of violence steadily diminished; 140 murders, of which 41 were of infants, were committed in 1927, whereas the ann. average for 1929-30 was 152. Cs. against property tend to occur in autumn and winter, Cs. against the person in spring and summer. There is no conclusive evidence of a so-called 'crime-wave' in Great Britain. Housebreaking, burglary, and larceny have, however, increased during the past four decades. In 1939-40, during the 'black-out' necessitated by air-raid precautions, burglaries were of very frequent occurrence. The number of persons found guilty of offences of all kinds in 1935 was 759,423, an increase of 101,660 compared with 1931. But of these, 132,816 were traffic offences while a great proportion of the residue were merely offences punishable under summary jurisdiction of police courts or at petty sessions. Serious Cs. of violence against the person accounted for only 1397 or 0.2 per cent of the offenders. Of the 51,477 persons guilty of larceny, more than half were under twenty-one, and 37 per cent under the age of seventeen. The increase in juvenile C. is a noticeable feature of C. statistics. Birthings, however, have ranged from 2000 cases in 1912, to 5000 in 1917 and only 200 in recent years. The daily average prison pop. in 1936 was 10,600 against 11,300 in 1935.

C. statistics for 1946 showed no decrease in serious C. nor in offences by juveniles. The disturbing influence of war is, in part, the explanation of this increase, but economic stress or other environmental conditions may also be contributory factors. The more modern methods of treatment by way of re-adjusting the criminal to society have not yet demonstrated their superiority over the earlier methods of penal reform. Just as the old argument, that the general law-abidingness of the community proved the virtue of the deterrent methods, has long been seen to be fallacious, so neither a diminution in the ranks of a recognizable criminal class nor any statistics yet produced through 'follow-up' studies of individual offenders justify any con-

clusion on the efficacy of the latest methods in eradicating C.; for there are far too many complicating factors in both the new and the old methods to allow of a convincing comparison of the deterrent and reformatory systems on the basis of results. The latter system, however, plays a large part in the provisions of the new Criminal Justice Act, 1948 (see below). C. statistics for 1946 (pub. July 8, 1948) recorded that convictions, excluding persons charged under Defence Regulations, totalled 522,011, viz. 107,809 (37 per cent more than in 1938) for indictable offences and 424,202 (42 per cent less than in 1938) for non-indictable offences; the drop in the latter category was mainly due to big decreases in the number found guilty of traffic offences (260,000 compared with 475,124 in 1938) and drunkenness (19,377, compared with 52,661 in 1938). Of the convictions for indictable offences, 83 per cent were for larceny and breaking and entering, the number of the latter cases being 93 per cent above 1938 (in the seventeen to twenty-one age group 140 per cent higher), and the number of receiving cases 132 per cent higher; 59 per cent of the 20,874 breaking and entering cases, and 32 per cent of the 69,127 larceny cases, were committed by boys and girls under seventeen. Convictions against girls and women for indictable offences rose from 9,781 in 1938 to 14,884, there being, however, six times as many males convicted of such offences as females. Sexual offences rose from 2321 in 1938 to 3331, convictions for cruelty to children and neglect from 632 to 1058 (being, however, 576 fewer than in 1945), and violence cases from 1538 to 2172. On the other hand, convictions for fraud and false pretences fell from 2749 to 2303. During the year 127 persons over one year old were murdered, compared with an ann. average of 102 between 1932 and 1935, 194 from 1936 to 1939, 159 in 1942, 95 in 1944, and 141 in 1945; 77 arrests were made for murder and sentences of death were passed in 25 cases. Of the 732 juveniles dealt with at assizes, quarter sessions, and the central criminal court (compared with 241 in 1938), 276 were placed under the supervision of a probation officer, 89 bound over without supervision, and 212 sent to Borstal, whilst 20,079 males and 4117 females were placed under supervision in the lower courts. Magistrates' courts sentenced a smaller proportion of adults to imprisonment than in 1938, but there was a big increase in the number of adolescents of seventeen to twenty-one sent to prison by those courts and the higher courts. Corporal punishment ordered by higher courts rose from 17 cases in 1938 and 14 in 1945 to 35 in 1946 (including 8 cases of the 'cut' and 27 of the birch), whilst magistrates' courts ordered 13 boys to be whipped in 1946, compared with 25 in 1945 and 48 in 1938. Finally, the official report stated that 20,389 persons had been found guilty of offences against Defence Regulations, almost all being concerned with black market operations and building licence offences.

Crime and the Second World War.—The war and its aftermath gave an undoubted impetus to C. throughout the country. This was partly due to a general lowering of standards through the brutalising effects of war. Murder and other major Cs. of violence are more frequent to-day than in the pre-war years, but the prin. increase in C. falls within the general category of theft. In 1946 the number of indictable Cs. in London was 128,000, i.e. 32,500 or 34.1 per cent higher than that of 1938. The theft of money, clothing, suitcases, jewellery, and food formed a high percentage of this total; the theft of vehicle accessories, tools, furniture, electrical goods, cigarettes, and furs also formed a substantial percentage. One of the causes of this increase is the shortage of goods and the readiness with which, when stolen, they can be disposed of at high prices; and a second is the slow pace at which the police forces of the country are being restored to full strength after wartime depletion. So long as the shortage of goods continues there is little hope of a diminution of Cs. of theft with or without violence. Moreover, owing to the continued rationing of goods and various regulations affecting the sale and use of many commodities there are innumerable new law-breakers ranging from the person who lightheartedly takes advantage of an easily evaded regulation to the determined 'black market' operator—many of whom do not consider themselves to have any 'criminal intent' despite the calculated fraud involved in a large number of these new statutory offences. There have also been great increases in cases of attempted evasion of customs duties or smuggling and in offences against currency regulations. A disturbing element in the prevalence of Cs. that can be broadly referred to the category of theft is a continued increase in the number of juvenile offenders—an element which might seem to refute any assumption that the present level of C. is a transient phase. Of some 3800 persons charged in 1946 with shopbreaking in the London Metropolitan dist., 2550 or two-thirds were under twenty-one and nearly one-third were schoolchildren. Nearly half of the 960 persons arrested for burglary were under twenty-one and one-quarter were not more than sixteen. Youths between seventeen and twenty formed more than one-third of the total of 1200 persons charged with stealing motor cars. Over 3400 children between eight and thirteen were arrested, mainly for shopbreaking or simple theft. Public tolerance of the criminal is one reason for the increase of C. The modern criminal is becoming a highly trained specialist, and there is no branch of C. so efficiently specialised as that of safe-breaking. The 'yegg' or safe-breaker is a competent mechanic, often able to open the most intricate combination locks; but even when this is done, he will blast off the lock with an oxy-acetylene lamp to avoid suspicion that that particular lock is no longer efficacious. Nitroglycerine is also used

for blowing open a safe, the explosive being inserted in a hole made with an electric drill. Another method of safe-breaking is to sprinkle on the top of the safe a mixture of iron oxide, powdered aluminium, and powdered magnesium, which, when lighted, melts the flat steel surface. To prevent this, safe manufacturers have evolved an elliptical safe. The modern cracksmen is well equipped with scientific methods of house-breaking, etc.; burglar-bells, for instance, can be put out of action by corrosive acid carried in a syringe. Behind the professional burglar there is often a large and efficient organisation. Working in 'gangs' is a feature especially of Amer. C. The casual type of burglar with mask and jemmy is a thing of the past. The modern crook has become a psychologist, and turns confidence trickster or organises what in America is known as a racket. Organised racketeers force owners of, for example, laundry businesses and garages to pay a monthly subscription for immunity, otherwise their business is ruined in ways which do not admit of police prosecution. Besides the racketeer who trades on his personality to acquire people's confidence, there are those who organise real estate swindles, stock market and insurance frauds, gambling rings, smuggling schemes, etc. Each new law, such as prohibition, brings its own sort of C. (see BOOT-LEGGING). One distinguishing feature of Amer. C. is the accompanying violence, often resulting in the death of police officers. In the U.S.A. in many states there are no restrictions on the sale of arms nor on their possession provided that they are not concealed. Bandits are therefore armed, and 'hold-ups' are considered more profitable than house-breaking. The days of the highwayman have returned, but the modern bandit escapes in the high-speed car, which has become an indispensable asset to all criminals. On the other hand the resources of science are also enlisted in the detection of C. This is exemplified by recent successes of the forensic science laboratories. Thus microphotography made it possible to identify the fire-arm from which a bullet had been fired, or to connect the striations on a knife with those on a broken piece of blade. Microscopic and chemical analysis of traces of paint from road vehicles found on the clothing of a victim of a road accident, and from doors and windows of houses on a house-breaker's tools, provided corroborative evidence. 'Fluorescent analysis' and photography of documents by ultra-violet light afforded positive proof of forgery, where chemical means had been used to eradicate the original marks. Documents, including licences, petrol coupons, ration books, and log books, are photographed every week by the police, and numerous convictions obtained on this evidence alone. For the classification of Cs., see CRIMINAL LAW.

Crimea (Tatar *Krym*, a fortress, auct. *Taurica Chersonesus*), region of the R.S.F.S.R., with its cap. at Simferopol. It forms a peninsula between the Black Sea and the sea of Azov, and connected

with the mainland of S. Russia by the isthmus of Perekop, 18½ m. long by 3 to 4 m. in breadth at its narrowest part. The peninsula, an irregular quadrilateral in shape, is 200 m. from E. to W. by 125 m. from N. to S., with an area of 9700 sq. m. Its coast-line is about 625 m. in extent. The Crimean peninsula is cut off from the mainland on the E. by the strait of Yonikale or Kerch. On the N.E. is the shallow inlet of the sea of Azov known as the Sivash, or Putrid Sea. On the S. the coast is broken by the bay of Kaffa, or Feodosia, W. of which it becomes rocky and broken into many capes and small bays. Balaklava and more especially Sebastopol have very fine harbours. The C. is watered by many small rivs., the chief of which, the Salghir, divides the peninsula into two distinct regions. The N.W., and much the larger, div. is a continuation of the Russian steppes, an extensive plain with a salty soil only fit for pasturage. The S.E. div. is for the most part mountainous, broken by fertile valleys and beautiful meadowlands. The Yailah-dagh (Taurus) range of mts. skirts the S.E. coast, attaining to a height of 5060 ft. in Roman-kosh, and 5000 ft. in Chutyr-dagh, or Tent Mt. (anc. Trapezus). Thermal and naphtha springs and mud volcanoes are found in the hilly dist. round Kerch. The climate of the two divs. is as different as their surface. The N.W. is healthy and mild in the spring, summer, and autumn, but in the winter is exposed to cold winds from the steppes and very severe frost and snow-storms. The S. coast enjoys the same sub-tropical climate as the Riviera with accompanying vegetation: vineyards, olive gardens, laurels, cyresses, and fig-trees, and with the brilliant flowers of the Mediterranean coast. The chief products of the C. are grain, tobacco, wines, and fruits. Its honey is famous, and there is a large cattle-raising industry. The small salt lakes yield large quantities of salt; porphyry, lime-stone, and sandstone are also found. Fish of many kinds, including salmon and sturgeon, abound round the coasts, and the C. provides a noted oyster. The chief tns. are Simferopol, Sevastopol, Yalta, and Feodosia, chief of the summer bathing resorts. The bulk of the pop. is of Tatar extraction, with the chief Tatar characteristics often practically obliterated by constant inter-marriage with Gks. and others, so that the unmistakable Tatars are outnumbered by Russians. The remainder of the pop. is composed of Gks., Karaites, Jews, Bulgarians, and Armenians. Pop. 750,000.

History.—The earliest inhab. who left any traces were the Celtic Cimmerians expelled by the Scythians in the seventh century B.C. They took refuge in the mts., and were known later as the Tauri. In the sixth century B.C. Ionian and Dorian Gks. began to settle in the peninsula, the former at Theodosia and Bosphorus or Panticapaeum, which they turned into a granary to supply Athens with wheat. In the fourth century B.C.

the ruler of the latter kingdom assumed the title of king of Bosphorus. In the first century B.C. the then king of Bosphorus, to obtain help against the Scythians, put himself under the protection of Mithridates, king of Pontus, and in 63 B.C. Mithridates' son was given the kingdom of Bosphorus by the Romans as a reward for helping them against his father. In 15 B.C. the king of Pontus regained it, but only as a trib. state of Rome. In the third and fourth centuries the C. was successively overrun by the Goths and Huns, by the Khazars (eighth century), the Byzantine Gks. (eleventh century), Komans or Kipchaks (1050), and the Mongols (thirteenth century). In the thirteenth century first the Venetians and then the Genoese formed trading settlements on the coast which flourished until the conquest of the peninsula by the Ottoman Turks in 1475. In 1783 the C. was annexed to the Russian empire, and since then until the Second World War, the only important event in its hist. was the war of 1854-56. In Sept. 1941 mechanised Ger. troops crossed the Dnieper above Kherson, turned towards the coast to reach the sea of Azov and cut off the Crimean Peninsula at the Perekop Isthmus; but they had no immediate success in penetrating the peninsula. In Oct. a Ger. attack penetrated the first line of defences but thereafter met with the most spirited resistance. Towards the end of that month the Ger. investment of the fortress of Sevastopol began. It was very long drawn out. On June 5, 1942, a Ger. bombardment opened the attack on Sevastopol and breached the N. defences by June 19. A few days later the Gers. gained control N. of Sevastopol. The tn. and harbour were then subjected to attack by incessant waves of 300 planes and the air blockade of the city was virtually complete. By the end of June the fortress was in process of collapse, for on July 1 the Gers. captured Balaklava and overcame the last defensive position outside Sevastopol with the taking of Malakov. At noon on that day their forces stormed into the city itself. The Russians made a last stand on the Chersonese Peninsula but the heroic defence of the great Russian fortress was now finally at an end. With the defeat of von Paulus at Stalingrad, however, came the turn of the tide in Russia. Part of the Ger. armies retreating from the Caucasus passed through the Taman Peninsula into the C. By the autumn of 1943 the Russians, having smashed the Ger. line based on Melitopol, had cut off the landward approaches to the C. After the recapture of Odessa by the Russians on April 10, 1944, their armies broke into the Crimean Peninsula across the Perekop Isthmus on April 11 and Sevastopol fell to them on May 9. In 1946 the C. lost its status as a Soviet republic on account of collaboration with the Gers., and large numbers of the inhab. were deported. The C. Conference was held at Yalta (4-11 Feb. 1945), at which Mr. Churchill, President Roosevelt, and Marshal Stalin completed plans for the defeat of Germany,

and the occupation and control of the country after its defeat; the conference also made preparations for the Polish settlement, and for the San Francisco Conference (q.v.). See also under YALTA. See further EASTERN FRONT OF RUSSO-GERMAN CAMPAIGNS IN SECOND WORLD WAR. See C. Bossall, *The Beautiful Scenery of the Crimea*, 1855-56; J. B. Telfer, *The Crimea and Transcaucasia*, 1876; Sir E. Wood, *The Crimea in 1854 and 1894*, 1895; and A. A. Vasiliev, *Goths in the Crimea*, 1936. See also BOSPHORUS and CRIMEAN WAR.

Crimean War was brought about largely through the aggressive policy of Tsar Nicholas I. of Russia, who had visions of a Russian empire embracing the whole of S.E. Europe, and determined to win Constantinople. Using as his pretext an obscure quarrel in Jerusalem between Gk. and Lat. Christians, Nicholas boldly claimed from the sultan a protectorate over all the Gk. Christians in the Ottoman dominions, thereby hoping to make the impending war a struggle between Cross and Crescent. But the sultan issued a solemn edict to the Christians, promising them full religious liberty, and appealing to France and England for help. Both powers responded to his request, the former because it was anxious to avenge Moscow, the latter because it feared its E. possessions would be menaced were Russia allowed to reach the Mediterranean. Yet at the time the Manchester leaders, Cobden and Bright, courageously denounced the war in the face of a bellicose people. The actual war extended from 1853 to 1856, being terminated by the unsatisfactory Peace of Paris. There were some naval engagements in the Baltic, but the true interest of the war is concentrated round Sebastopol, the Russian stronghold in the Crimea. The allied forces were at first mustered in Varna, but in 1854 were transported to Eupatoria, after having suffered terribly through cholera. By the victory of the Alma in Sept. 1854, when the brunt of the fighting fell on the Eng., a way for the Allies was cleared to Sebastopol. It was during an Oct. attack by the Russian general Bismarck upon Balaklava, the Eng. headquarters, that the Light Brigade won an undying fame by its fatal but valiant charge through N. Valley. In Nov. the Eng. Guards and troops on the hill of Inkermann beat back the assaulting Russians, but in spite of their victory dared not attempt to capture Sebastopol by storm. Accordingly the Allies settled down to a winter siege. Tempests wrecked the transports bearing clothing, ammunition, etc., so that the soldiers were totally unprepared to endure the snows and bitter cold, and Miss Florence Nightingale, who did noble work as nurse, bore vivid testimony to the acute sufferings and deprivations and also to the patience and courage of the soldiers. Early in 1855 the Eng. commander-in-chief, Raglan, and Nicholas d. In Aug. the Fr. and Sardinians, who had joined in the war, defeated the Russians at the battle of the Chernaya, and the former

captured the Malakov redoubt, though the Eng. were driven back from the Tchernaya. In Sept. the Russians surrendered Sebastopol. By the provisions of the treaty the Russians abandoned their claim to a protectorate over the Christians, and agreed not to build any more forts on the Kuxine, but recovered Sebastopol. The great powers assumed responsibility for seeing that the Sublime Porte fulfilled its guarantees to the Christians. Navigation on the Danube was thrown open. This war demonstrated to England the folly of attempting to rehabilitate Turkey, the crying need for reform in military organisation, and the stubborn valour of the troops. See L. Tolstoy, *Sevastopol*, 1863-87; A. W. Kinglake, *The Invasion of the Crimea*, 1899; C. F. MacMunn, *The Crimea in Perspective*, 1935; and H. W. V. Temperley, *England and the Near East*, vol. 1, *The Crimea*, 1936.

Crimes, War. The whole complex of legal rules which order the life of a community in time of peace are equally valid in time of war. The laws of peace remain in force despite the state of war, though they are subject to exceptions which operate in certain circumstances and under certain conditions, and so give what validity there may be in the dogma *inter arma leges silent*. War sanctions by its very existence the use of force, the use of lethal weapons, the destruction of life and property. Hence civilised states have long reached an agreement by which they decided to introduce order into the chaos of war, or, in other words, to make 'laws of warfare' by way of providing a solution of the age-old conflict between brute force which knows no limits and force controlled by rules. These laws of warfare are a great compromise resulting from the conflict between the command of law and the necessities of war. Long before the world wars there were numerous written laws of warfare—conventions, regulations, protocols, etc.—and these together form the body of the international (written) laws of warfare. Among them are the declaration of Paris, 1856 (q.v.); the Geneva Convention, 1864, for the amelioration of wounded soldiers; and some thirteen Hague conventions, signed between 1899 and 1907, and various Hague declarations, e.g. that of 1899 concerning projectiles diffusing asphyxiating gases (which is confirmed and extended by the protocol of 1925), the Geneva Convention of 1929 on the treatment of sick and wounded and of prisoners of war, and the London Protocol of 1936 relating to the use of submarines against merchant vessels. But the mere fact that this body of laws does not expressly cover all crimes does not mean that the rules of warfare approve of such omitted crimes. The Fourth Hague Convention (1907) covers omissions by saying that the powers 'were inspired by the desire to diminish the evils of war' and that 'the right of belligerents to adopt means of injuring the enemy is not unlimited' (Article 22). But at the time when the Hague rules were drafted, it was not

anticipated that all the new inventions and developments would be used one day as mortal weapons of destruction, that the greater the achievements of science the deeper would be the abyss of brutality, cruelty, and vandalism. That is probably why the written laws of warfare, though prohibiting some minor offences and crimes, did not deal with the very great crimes. But this lack of rules does not mean that these crimes can escape prosecution, for all of them are prohibited by the unwritten, if not written, rules of war. On this point the preamble to the Fourth Hague Convention says: 'Until a more complete code of laws of war can be issued the high contracting parties think it expedient to declare that in cases not included in the regulations adopted by them, populations and belligerents remain under the protection and the rule of the law of nations (see *JUS GENTIUM*), as they result from the usages established between civilised nations, from the laws of humanity, and the requirements of the public conscience.'

In short, the lack of written law is only a formal deficiency and altogether the rules of warfare must be sought in (a) the written international rules of warfare embodied in international agreements; (b) the unwritten international law, as defined in the Hague conventions and Article 38 of the Statute of the Permanent Court of International Justice; and (c) municipal legislation—for it seems obvious from passages in the international conventions that the signatory powers undertook to translate the stipulations of the respective agreements into the language of municipal law, by their penal codes, military codes, or special legislation; and this applies not only to the contractual obligations of the signatories which form the subject of the international conventions, but also to all those rules of international laws of war which result from the 'usages established between civilised nations, from the laws of humanity, and the requirements of the public conscience,' for they are the 'silent' rules of warfare. A war crime therefore does not necessarily differ from any other crime, though a typical list of 'war crimes' was drawn up by the 'Commission on Responsibility,' which was charged with the task of investigating the matter of atrocities committed by the Central Powers during the First World War (see *American Journal of International Law*, vol. xiv., 1920). Obviously some W. C. could only be committed through the opportunity offered by war conditions; but, substantially, this does not differentiate a crime of violence committed during war and one committed in peacetime. One authority lists various elements as the essentials for qualifying 'war crimes': 'They are acts of violence (both positive and negative violence); they are committed under specially favourable circumstances created by war; committed by a special group of persons in connection with the war (e.g. army commanders, police in occupied countries, commandants of prisoner-of-war camps);

committed during war; and are not covered by the exceptions provided by the international laws of warfare' (M. Lachs). Certainly the element of violence was emphasised by the Inter-Allied Conference at St. James's Palace (Jan. 1942), whose delegates signed a declaration in which they affirmed that acts of violence perpetrated by the Gers. and their allies and associates against the civilian pops. were at variance with accepted ideas concerning acts of war and political offences as these are understood by civilised nations, and placed among their prin. aims the punishment of those guilty and responsible for these crimes, and they expressed their determination to see that the guilty, whatever their nationality, were sought for and handed over to justice, and that the sentences pronounced were carried out. In short, it is clear that the concept of 'war crime' is free from uncertainty or ambiguity.

The defect in the past in these prohibitive provisions of international law has been that there was no court with power to try and to punish the transgressor. 'It is,' wrote Lord Simon, on the Nuremberg trial, 'the creation of the court, not the enunciation of the law, that is the novelty; and few people will feel their sense of justice outraged because when Germany collapsed the Allies decided to create such a court rather than to let those who were guilty of such deeds violate the law with impunity.' The outcome of this decision was a charter constituting the tribunal which tried and condemned the Nazi leading criminals at Nuremberg (see *NUREMBERG TRIAL*). In that trial Lord Justice Lawrence disposed of the *ex post facto* pleas of the defendants, particularly as such pleas affected wars of aggression regarded as crimes. For the defendants it was urged that a fundamental principle of all law—international and domestic or municipal—is that there can be no punishment of crime without a pre-existing law. *Nullum crimen sine lege, nulla poena sine lege*. It was submitted that *ex post facto* punishment is abhorrent to the law of all civilised nations, that no sovereign power had made aggressive war a crime at the time the alleged criminal acts were committed, that no statute had defined aggressive war, that no penalty had been fixed for its commission, and no court had been created to try and punish the offenders. Lord Justice Lawrence, in delivering the judgment of the court, said that the maxim *nullum crimen sine lege* is not a limitation of sovereignty, but is in general a principle of justice. 'To assert,' he said, 'that it is unjust to punish those who in defiance of treaties and assurances have attacked neighbouring states without warning is obviously untrue, for in such circumstances the attacker must know that he is doing wrong, and so far from it being unjust to punish him, it would be unjust if his wrong were allowed to go unpunished. Occupying the positions they did in the government of Germany, the defendants, or at least some of them, must have known of the treaties signed by Germany outlawing

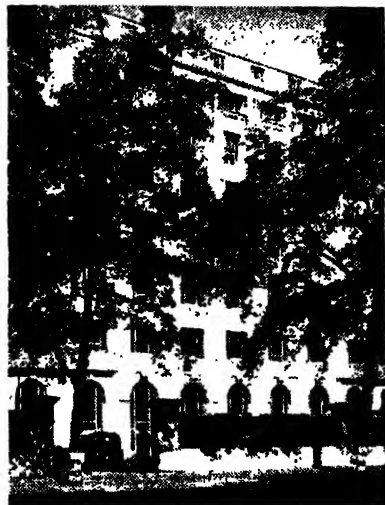
recourse to war for the settlement of international disputes; they must have known that they were acting in defiance of all international law when in complete deliberation they carried out their designs of invasion and aggression. On this view of the case alone, it would appear that the maxim has no application to the present facts.' The judge pointed out that that view was strongly reinforced by the pact of Paris or Kellogg-Briand Pact of Aug. 27, 1928, which was binding on sixty-three nations, including Germany, Italy, and Japan. 'War for the solution of international controversies undertaken as an instrument of national policy certainly includes a war of aggression, and such a war is therefore outlawed by the pact.' It was also submitted on behalf of most of these defendants that in doing what they did they were acting under the orders of Hitler, and therefore could not be held responsible for the acts committed by them in carrying out these orders. 'The fact that the defendant acted pursuant to order of his government or of a superior shall not free him from responsibility, but may be considered in mitigation of punishment' (Article 8 of the International Military Tribunal). 'The provisions of this article,' said Lord Justice Lawrence, 'are in conformity with the law of all nations. That a soldier was ordered to kill or torture in violation of the international law of war has never been recognised as a defence to such acts of brutality, though, as the charter here provides, the order may be urged in mitigation of the punishment. The true test, which is found in varying degrees in the criminal law of most nations, is not the existence of the order, but whether moral choice was in fact possible.' According to statistics of the United Nations W. C. Commission, an international body estab. in Oct. 1943 at a meeting of the representatives of seventeen nations in London, some 24,365 persons had been tried in Europe (up to about the end of Dec. 1946) for W. C. in Brit., U.S., Fr., Gk., Norwegian, Czechoslovak, and Polish courts (the figures for Czechoslovakia and Poland include also trials of persons accused of collaboration and treachery). Out of this total 1432 received the death penalty, 16,413 were sentenced to varying terms of imprisonment, and 6520 were acquitted. In the Far E. 1468 persons had been tried before U.S., United Kingdom, and Australian courts, with 457 death sentences, 735 sentences of imprisonment, and 276 acquittals. These figures, however, constantly increased as the machinery came into full working order in all the countries concerned. No figures were available from the Soviet Union or the Soviet zone of occupation in Germany. See also UNITED NATIONS WAR CRIMES COMMISSION.

Criminal Appeal, Court of, was estab. in England by the Criminal Appeal Act, 1907. The judges eligible to sit in the court are the lord chief justice and the judges of the King's Bench Div. (appointed for the purpose by the lord chief

justice with the consent of the lord chancellor for such period as he thinks desirable in each case). The number of judges at any sitting is three. By the above-mentioned Act the right of appeal is given to a person (a) against conviction on ground of appeal involving a question of law; (b) with the leave of the court or upon the certificate of the judge who tried the prisoner that it is a fit case for appeal, against conviction on any ground of appeal involving a question of fact alone, or a question of mixed law and fact, or any other ground which appears to the court to be a sufficient ground of appeal; (c) with the leave of the court against the sentence unless the sentence be one fixed by law. The court in any such appeal shall allow the appeal if they think that the verdict of the jury should be set aside on the ground that it is unreasonable or cannot be supported on the evidence, or that the judgment of the court before whom the appellant was convicted should be set aside on the ground of a wrong decision on any question of law, or that, on any ground, there was a miscarriage of justice. The court may, however, dismiss the appeal, notwithstanding that they are of opinion that the point raised in the appeal might be decided in favour of the appellant, if they consider that no substantial miscarriage of justice has actually occurred. On an appeal against sentence the court shall, if they think that a different sentence should have been passed, quash the sentence passed at the trial and pass such other sentence (more or less severe) warranted in law by the verdict, and thus implies a power to increase the term of imprisonment given in the court below. The court shall, if they allow an appeal against conviction, quash the conviction and direct a judgment and verdict of acquittal to be entered. The principle upon which the court act is that of attaining the end of substantial justice. They will not quash a sentence upon a mere technicality, but require proof that there is a doubt whether, had the proceedings been conducted differently, the jury would have found another verdict. In this connection it is to be noted that the court has decided that the prisoner is entitled to have his defence, however weak or improbable, included by the judge in his summing-up and the omission of this duty by the judge is sufficient to upset the verdict on appeal. The appellant is entitled to be present on the hearing of an appeal against conviction, but not an application for leave to appeal.

C.I.D. (Criminal Investigation Department) is the detective branch of the Metropolitan Police. The C.I.D. was created in 1878 under Howard Vincent, who was appointed director of criminal investigation. Under his successor, James Monro, the C.I.D. was brought under the nominal control of the commissioner of police, and Monro became assistant commissioner. To cope with the Fenian outrages, 1883-85, Monro created a special branch of the C.I.D., first called the Special Irish Branch. The special branch

is still continued, and is concerned with the protection of state personages and with any crimes directed against the state. The special branch, however, is not under any form of political control. In addition to this branch the C.I.D. consists of a staff of detectives at New Scotland Yard, and at each of the twenty-three divs. of the Metropolitan Police Dist. The activities of the detective staff at Scotland Yard are divided between the Central Office and the Criminal Record Office, which includes the finger print bureau. The estab. strength of the C.I.D. is about



John H. Stone

C.I.D.

The new building of the Metropolitan Police at New Scotland Yard, from the Victoria Embankment, London.

920 men. Plain-clothes detectives are selected from those showing special aptitude after serving in the uniform branch for twelve months. The C.I.D. is noted for its excellent team work, and it is now subdivided into branches which specialise in various aspects of crime. The C.I.D., of which the Flying Squad is a part, operates only within the metropolitan area, but the chief constable of a prov. dist. may solicit the aid of the C.I.D. through the medium of the home secretary. The number of inquiries undertaken for the prov. and continental police averages 6000 annually. The work of the C.I.D. is confined to indictable offences of a more serious character. Much valuable work is also done by the C.I.D. in preventing crime.

Criminal Law. The professed object of C. L. is the prevention of crimes by the deterrent effect of punishment. The

term crime does not lend itself to exact definition, but may be described as 'an act forbidden by law under pain and punishment.' The advantage of this description by reference to the sanction (*i.e.* evil incurred by reason of disobedience to command) is that crimes can be differentiated from civil injuries or torts, the two terms not being mutually exclusive. Neither the moral quality of a particular act nor the enormity of its consequence is a certain criterion for referring it to the category of crimes. Theoretically these may be valuable tests in that the fundamental object of the C. L. is the vindication of a wrong done to the community, whereas damages are given by way of compensation for a wrong tending rather to the prejudice of a private right. Again, as civilisation advances, the tendency, in marked contrast to ruder states of society when even theft was regarded as a civil injury, is to increase the number of acts the moral obliquity of which renders them punishable as crimes. Most crimes necessarily include a tort, *e.g.* libel, assault, and rape, and give a right to sue for damages; but many crimes, such as treason and perjury, give no such right; and again, such wrongs as trespass to lands, seduction, and slander are merely civil injuries and not crimes. In general, nothing is a crime unless plainly forbidden by law; but a common law court may in its discretion pronounce to be a crime any act which is productive of great public mischief or grave moral scandal. In the Eng. law the traditional classification of crimes is into treason, felonies, and misdemeanours. They are also classified according as they are punishable: (1) On indictment or information, or (2) on summary conviction before a justice or justices of the peace without the intervention of a jury. A broad classification is frequently made between crimes and offences, the latter embracing non-indictable wrongs punishable either summarily or by the infliction of a penalty, the former being restricted to acts punishable on indictment; but otherwise the two terms are interchangeable. All treasons, felonies, misdemeanours, imprisonments (*q.v.*) of treason or felony, and attempts to commit any of these crimes, are indictable. In general, it may be said that felonies comprise the more serious, and misdemeanours the less serious, crimes. The distinction, however, is merely historical, a felony (literally the price of a fief) in feudal times signifying any offence which was visited with forfeiture by the accused of his fief or land to the lord of the fee. Later the term was applied also to acts which resulted in forfeiture of goods. In Blackstone's time capital punishment (*q.v.*) usually followed on a conviction for felony, except in cases of petty larceny or wounding. An act is also a felony where so described by the statute creating the offence, but most felonies are so at common law. Felonies and misdemeanours differ mainly in respect of their consequences: a suspected felon may be arrested without a warrant under certain conditions, but not so a misdemeanant;

misdeameours are triable upon indictment, inquisition or information, but felonies are not triable on information; in the case of felonies the person aggrieved should vindicate the public wrong by prosecuting the felon before beginning any civil action that may be open to him, but in misdeameours there is no such obligation on him; and a person charged with misdeameour may be released on bail (*q.v.*), but not so a person accused of felony. The distinction between felony and misdeameour is unknown in the C. L. of Scotland. It is a rule of the Eng. C. L. that no one is a criminal unless he has a guilty mind (*nemo est reus nisi mens sit rea*). Motive is immaterial. Criminal intention, a guilty mind, and malice are all synonymous in C. L., and indicate, not ill-will against a particular person, but that a wrongful act has been done intentionally and without just cause or excuse. Malice is an essential element except where an act is expressly declared to be criminal without proof of guilty intention. These exceptions comprise mainly public nuisances, cases of adulteration of tobacco, adulteration of food and drugs, offences against the Merchandise Marks Acts, and offences relating to the sale of intoxicating liquors. Such acts can hardly be called criminal in the truest sense, but they are criminally punishable on grounds of public policy.

An attempt to commit a crime is punishable if the act done is a sufficient indication of the intention to commit the full offence. No person may be excused for a criminal act unless he can be presumed not to have realised the consequences of what he was doing. Infants under seven years of age are presumed to be absolutely incapable of crime. Children between seven and fourteen years of age are only punishable for a crime where there is evidence of guilty knowledge or mischievous discretion. Hales's *Pleas of the Crown* records the fact that a boy of ten was hanged for murder (Spigurnel's case). Insanity, like infancy, is deemed incompatible with criminal responsibility, but the presumption of sanity is only rebuttable by proof that the accused at the time of committing the act was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or if he did know it, that he did not know he was doing what was wrong (*see CRIMINOLOGY*). Where the insanity is partial, *i.e.* where the delusions extend to one or more matters only, the test of responsibility depends on whether, assuming the facts to be as the accused in his delusion supposed them, the act was nevertheless contrary to the law, and also whether the accused knew the act was contrary to the law. Drunkenness is no excuse for crime, although it may be taken into account in considering the motive or intent with which the accused committed the act; and chronic drunkenness, resulting in a degree of madness temporary or permanent, may render the accused criminally irresponsible. But though insanity, whether caused by

drunkenness or otherwise, is a good defence, the test of criminal responsibility in the case of drunkenness is not the same as for insanity, and where the defence sets up only drunkenness and not insanity, the judge will not direct the jury on the question whether, even if the prisoner knew what he was about, he knew that he was acting unlawfully. The House of Lords confirmed these principles in a general review of the case-law on the subject in the case of *R. v. Beard* in 1920 and also laid it down that evidence of drunkenness which makes the prisoner incapable of forming the specific intent essential as an ingredient in the crime with which he is charged should be considered together with the other facts proved so as to determine whether he had such intent. Ignorance of the C. L. is no excuse for a crime. A bona fide mistake of fact will excuse if the original intention was lawful. In many cases of felony, if a wife commits the crime in the presence of her husband, the law presumes that she acts under his coercion. The presumption is rebuttable on proof that she was the leading spirit in the transaction. The law is uncertain in the case of a married woman's misdeameours, but the general tendency now is to apply the same rule as in felonies. Persons committing acts otherwise criminal, under the physical compulsion of another, or as a consequence of terror greater than that inspired by the law, are, in general, irresponsible for such acts. An accessory before the fact is one who, though absent at the time of the felony committed, yet procures, consents, commands, or abets another to commit a felony. There can be no accessories in treason or misdeameour, all persons participating being prin. offenders. An accessory after the fact is one who, knowing a felony has been committed by another, receives, relieves, comforts, or assists the felon (*see BREACH*). Crimes are generally classified as follows: (1) Offences of a public nature, including (a) crimes against the sovereign and the gov., *e.g.* treason, sedition, and coinage offences; (b) against religion, *e.g.* blasphemy (*q.v.*); (c) against public justice, *e.g.* perjury, champerty (*q.v.*), maintenance (*q.v.*), breach of prison (*see BREACH*), and compounding (*q.v.*) offences; (d) against the public peace, *e.g.* riots, libels, challenge to fight; (e) against public trade, morals, health, and good order, *e.g.* smuggling, bigamy, indecency, adulteration, and keeping gaming houses; (2) offences against the persons or property of individuals, including, as to the person, murder and manslaughter, rape and offences under the Criminal Law Amendment Act, 1885, concealment of birth, and assaults of various kinds; and, as to property, arson, burglary, embezzlement, forgery, housebreaking, larceny, obtaining by false pretences and receiving stolen goods. The Prevention of Crime Act, 1908, provided that a person who was convicted of being an 'habitual criminal' might be sentenced to a term of not more than six years' preventive detention in addition to the sentence for the crime

wherewith he was then charged. It is difficult to say how far this Act, during its forty years' duration, was effective in the prevention of crime, but the opinion gradually prevailed that what was wanted was not so much detention as corrective training. Hence the Act was repealed by the analogous provisions on 'persistent offenders' of the Criminal Justice Act, 1948. These provide that where a person not under twenty-one is convicted on indictment of an offence punishable with two or more years' imprisonment, and has been twice previously convicted since he attained seventeen years of age of offences similarly punishable, the court may, with a view to his reformation and the prevention of crime, in lieu of any other sentence, pass a sentence of corrective training for not less than two nor more than four years. This term of training is to be followed by a period of supervision if the offender is released before the expiration of his sentence. If the persistent offender is not less than thirty and has been convicted on indictment on at least three previous occasions since seventeen years of age, and was on at least two of those occasions sentenced to Borstal training, imprisonment, or corrective training, the court may sentence him to a term of preventive detention of not less than five nor more than fourteen years. Besides capital punishment (*q.v.*), which may be awarded only in cases of high treason, murder, piracy with violence, and setting fire to his majesty's ships, dockyards, etc., punishment in England may consist of penal servitude for not less than three years, imprisonment with or without hard labour for not more than two years, and fines. No court may pass a sentence of whipping, but under the prison rules made under the Criminal Justice Act, 1948, a male prisoner may be awarded by a visiting committee eighteen strokes (twelve if he is under twenty-one) of a cat-o'-nine-tails or birch rod for mutiny, incitement to mutiny, or gross personal violence to a prison officer. Children under seventeen may be sent to an approved school (see CHILDREN ACTS). Since the passing of the Criminal Appeal Act, 1907, a person convicted of an offence may appeal against either his conviction or his sentence, or both, whether in a question of fact or law, or both (see CROWN CASES RESERVED, COURT FOR; CRIMINAL APPEAL, COURTOFF). The Crown, through the home secretary, may exercise the prerogative of pardon, or reprieve a person convicted of murder by commuting the death sentence for a term of imprisonment. Courts of criminal jurisdiction in England include the central criminal court (*q.v.*), assize courts, co. or quarter sessions (see COUNTY SESSIONS), and petty sessional courts. The king's bench div. has jurisdiction in all crimes, but rarely exercises it. Parliament is a high court for certain trials, the proceedings being either by impeachment or, in the case of trial of a peer, by indictment before the House of Lords. The Scots C. L. in its essentials closely approximates to the Eng., such differences as exist

being mainly in the terminology which is borrowed directly from the civil law (*q.v.*), although often applied with a different shade of meaning, e.g. criminal intent or malice is known as *dole* (Lat. *dolus*, fraud, deceit); and small petty offences were generally called *delicts*. By the Scots law no private party except the person injured or his next of kin can accuse criminally; and to enable him to do so he is required to apply to the Lord Advocate to obtain his concurrence to the prosecution with a right of appeal to the High Court of Justiciary in case of the Lord Advocate's refusal.

The present century has seen changes in the law which have much altered the nature of criminal trials. The most significant Acts in this respect have been the Criminal Evidence Act, 1898, which enabled any person being tried on a criminal charge to give evidence upon his own behalf (besides allowing the accused's wife or husband to give evidence); the Criminal Appeal Act, 1907, which allowed appeals not only on points of law but on the facts (*cf.* BERK, ADOLF); and the Indictments Act, 1915, which revolutionised the form of indictments, simplified the procedure in many respects, and rendered unnecessary or even obsolete a mass of technical learning which had rendered the C. L. the most complex and difficult of all the branches of our law. The attitude of our courts towards the criminal has changed in correspondence with the change in the appearance, methods, and numbers of the criminal. Thus a modern criminal rarely has a long list of previous convictions recorded against him. Often too he has a substantial business, which to all outward appearance is honestly conducted. Modern judges are not necessarily disposed to assume that a man is honest because he has never actually been charged or convicted of dishonesty; nor do they assume that a man is incapable of committing a sexual crime because the police know nothing against him. Again, the armed burglar is obsolete, and has been replaced by the slim, athletic cat-burglar, who can climb a drainpipe with consummate ease and remove a pane of glass without noise. It is in regard to his weak associates that the attitude of the courts has changed completely—i.e. the type of weak youth to whom the cat-burglar or other criminal poses as a hero who can outwit the police and live a life of luxury without working. Mr. Justice Humphreys believes there is general acceptance for the proposition that a first offender, especially if young, should only be imprisoned if his crime is of the kind which demands punishment by way of deterrent to others. From a pamphlet entitled *Prisons and Borstals*, issued by the Home Office in 1945, it is evident that the authorities wished if possible to improve the prison system and to secure the right means of reforming youthful law-breakers, and these objectives found expression in the new Criminal Justice Act, 1948 (see below). As regards the

Criminal Appeal Act, the main objects in the minds of those responsible for the passing of the Act were (i) to give every person convicted on indictment the right to have any point of law arising during the trial considered by the court of appeal; (ii) to enable that court to revise sentences, the inequality and severity of which had become notorious. Two recent lord chief justices have frequently averred that appeals upon so-called points of law are in an increasing number of cases frivolous and an abuse of the process of the court, and indeed successful appeals against conviction number no more than about 4 per cent of the applications sent in. But the court has undoubtedly been useful in the direction of standardising sentences and 'the fact that there was a court to which a convicted person might appeal against a sentence has undoubtedly tended to make some trial judges, burning with indignation at the misdeeds of some miscreant, pause before translating into terms of imprisonment or penal servitude all the anger they may feel' (*Criminal Days*, by Mr. Justice Humphreys, 1946).

The Gov.'s Criminal Justice Bill, pub. in Nov. 1938, proposed drastic reform in the Brit. penal system, a further humanising of prison life, and a number of new methods of dealing with juvenile and adolescent offenders without recourse to imprisonment. Under this Bill corporal punishment would have been abolished, except for mutiny and gross assault in prison. The clause abolishing corporal punishment for all offences except assaults on prison warders was carried in March 1939, in the Standing Committee of the House of Commons which had the Bill under consideration. But in Nov. 1939 the Bill was abandoned, subject to the possibility of its being reconsidered if more opportune circumstances arose.

A new Bill was introduced by Mr. Attlee's Labour Gov. in 1947 and received the royal assent in the following year. This, the Criminal Justice Act, 1948, makes some important changes in the administration of justice, to come into operation on such dates as may be appointed by Order in Council, and large sections of the Act came into operation on Dec. 27 (1948). Sections 1 and 2 abolish penal servitude, hard labour prison div., and sentence of whipping, but they are not yet operative. On the second reading of the Bill in Nov. (1947) the gov. intimated that they could not regard the time as opportune to include in it provision for the suspension or abolition of the death penalty. A number of members were in favour of abolition, but statistics showing an appreciable increase in Cs. involving violence in the years between 1938 and 1946, and also an increase in trials for burglary, house-breaking, and shop-breaking, determined the gov.'s attitude on the question. Hitherto it had been unusual for criminals engaged in these Cs. to carry lethal weapons, particularly fire-arms, but since the Second World War there has been evidence of a regrettable change in this respect. Among the things to be considered was whether old offen-

ders, who might expect a heavy sentence for such Cs., would be tempted to arm themselves if they ran no risk of losing their lives on conviction of a murder perpetrated during the commission of, or issuing from, a criminal enterprise. The Act also amends the law relating to the probation of offenders and provides new methods of dealing with persons liable to imprisonment; amends the law relating to the proceedings of criminal courts, including the law relating to evidence—the Act making some advance in providing for greater use of written evidence as distinct from spoken evidence; abolishes privilege of peerage in criminal proceedings; and regulates the management of prisons and other institutions and the treatment of offenders and other persons committed to custody. Where a court before which a person is convicted of an offence (not being an offence the sentence for which is fixed by law) is of opinion that, having regard to the nature of the offence and the character of the offender, it is expedient to do so, the court may, instead of sentencing him, make a probation order, that is, an order requiring him to be under the supervision of a probation officer for not less than one year nor more than three years. This part of the Act contemplates a substantial extension of the probation hostel or home and, generally, provides for inclusion in the probation order of requirements relating to the residence of the offender, the guiding consideration being his home surroundings. Where the court is satisfied that the mental condition of an offender is such as requires and as may be susceptible to treatment but is not such as to justify his being certified as a person of unsound mind under the Lunacy Act, 1890, or as a defective under the Mental Deficiency Act, 1913, the court may include in the probation order a requirement that the offender shall submit to treatment either as a voluntary patient in a hospital, nursing home, or other approved place, or as a resident patient in an institution approved by the minister of health, or as a non-resident patient at such an institution, or treatment under the direction of a duly qualified medical practitioner as may be specified in the order. But a probationer who is required to submit to treatment for his mental condition will not be treated as having failed to comply with that requirement on the ground only that he has refused to undergo any surgical, electrical, or other treatment if, in the opinion of the court, his refusal was reasonable having regard to all the circumstances. Non-compliance with the requirements of a probation order involves the offender being dealt with by a court in any manner in which it could have dealt with him if it had just convicted him of that offence; or, in the case of young offenders, being required to attend an 'attendance centre' for a specified number of hours. The Act, while not limiting the power of the courts in dealing, within the maximum penalties laid down for various types of offences, severely with an offender when severity is required, maintains a range of treatment

available to the courts in dealing with offenders. This is especially exemplified in the new provisions respecting young offenders. Sentence of death may not be pronounced on or recorded against a person convicted of an offence if it appears to the court that at the time when the offence was committed he was under the age of eighteen years; but, in lieu of such sentence, the court shall sentence him to be detained during the king's pleasure. A court of summary jurisdiction may not impose imprisonment on a person under seventeen years of age, and a court of assize or quarter sessions may not impose imprisonment on a person under fifteen years of age; and no court may impose imprisonment on a person under twenty-one years of age unless the court is of opinion that no other method of dealing with him is appropriate. The alternatives to imprisonment are probation orders, detention in a detention centre, and training at a Borstal institution, but a court may not order a person to be detained in a detention centre if he has previously been sentenced to imprisonment or Borstal training, or if he is not less than seventeen years of age, and has previously been ordered to be so detained since reaching that age. A court of summary jurisdiction inflicting imprisonment on a person between seventeen and twenty-one must state and enter in the court register the reason it has formed the opinion that no other method of dealing with the offender is appropriate. The Act contemplates that a young offender discharged from prison shall be under adequate supervision to help him in rehabilitation and to reinforce and inspire his own efforts to avoid temptation to a life of crime. The Act therefore provides that offenders under twenty-one, sentenced to twelve months' imprisonment or more, shall, in approved cases, be licensed at the time when ordinarily due to discharge as remission for good conduct. The licence contains conditions requiring supervision, and the offender for the remainder of the period is liable to recall. Some important changes are made in Borstal training. The age limit is fixed at twenty-one and the Act also widens the qualification for Borstal training by empowering the court to order it, if satisfied of its expediency having regard to character, previous conduct, and circumstances of the offence. This enables assizes and quarter sessions to impose Borstal training in the light of all information on the offenders and offences. The actual period of detention in a Borstal institution may not exceed three years nor be less than twelve months. The Act abolishes the right of peremptory challenge of jurors which, however, was an obsolete right practically never exercised. But an accused person retains the right to challenge a juror 'on cause shown,' which affords considerable protection.

See J. F. Stephen, *Digest of Criminal Law*, 1877, 1926, and *History of the Criminal Law of England*, 1883; S. F. Harris, *The Principles and Practice of the Criminal Law*, 1899, 1936; C. S. Kenny,

Outlines of Criminal Law, 1902, 1936; P. Howard, *Criminal Justice in England*, 1931; A. M. Wilshire, *Elements of Criminal Law and Procedure*, 1933; and H. Mannheim, *The Dilemma of Penal Reform*, 1939.

United States.—The principles underlying the C. L. of the U.S.A. are those of the Eng. common law. Most of the maxims familiar to the student of Eng. C. L. obtain in the Amer. system, e.g. the maxim, *neminem ignorantia eorum que quis scire tenetur excusat*, i.e. every person is bound and is presumed to know the law at his peril. The C. L., whether common or statute, is imperative with reference to the conduct of individuals; so that where a statute forbids or commands anything to be done, any act of omission or commission contrary to the prohibition or command is an offence at common law and indictable in the U.S.A. as in England. An offence which may be the subject of criminal procedure is defined in the classic Amer. authorities as an act committed or omitted in violation of a public law either forbidding or commanding it (114 U.S. 677). As respects the sources of Amer. C. L., it is an accepted principle that when a statute punishes a crime by its legal designation, without enumerating the acts which constitute it, then it is necessary to resort to the common law for a definition of the crime with its distinctions and qualifications; hence if an act is made criminal, but no mode of prosecution is directed or no punishment provided, the common law comes into operation, prescribing the mode by prosecution or by indictment. This is the common law of England, but might now be properly called the common law of the U.S.A. (Baldwin's *Century Edition of Bouvier's Law Dictionary*, 1926). Many if not all the cardinal principles of the Eng. and Amer. systems of C. L. are identical, e.g. that every one is presumed to be innocent till the contrary is shown; that the question of guilt is to be determined without reference to a prisoner's general character; that the prisoner cannot be required to criminate himself; but this principle is subject to the position that where the prisoner testifies in his own behalf he may be cross-examined like any other witness, just as in Eng. criminal procedure under the Criminal Evidence Act, 1898. Though the states owe their law to the one common source, the common law of England, it cannot be said that one *corpus juris* of C. L. prevails in the U.S.A. as a whole; for in the administration of the C. L. each state has its exclusive jurisdiction as a sovereign independent community; each with its own judges and its own separate procedure, subject always to the overriding restrictions imposed by the Amer. Constitution. As in England, the dividing line between felonies and misdemeanours prevails, but by the operation of statute law it occasionally happens that a crime may be a felony in one state and a misdemeanour in another; but generally the more serious crimes are felonies. In state codes or systems of C. L. crimes are further divided into the usual categories of crimes against

the person and against property, other main categories being crimes against the public peace (e.g. riots), against trade (e.g. offences against the customs laws), against decency, against the law of nations (e.g. piracy). In murder, unlike the simplicity of the Eng. common law definition, there are various 'degrees' of culpable homicide (see *under MURDER*); while as regards treason, the sole kinds recognised in the U.S.A. are levying war against the State or adhering to its enemies. As to the ingredients of any particular crime, the general principles are the same in the U.S.A. and for the different states as in other matured legal systems; and the same observation applies to the analysis of criminal responsibility, e.g. the rule in *McNaughten's case* on insanity as a defence (see *McNAUGHTEN'S CASE*), and again as to the validity or otherwise of drunkenness as a defence. In one vital particular criminal procedure in the U.S.A. is in advance of Eng. procedure in that in a prosecution for a crime in which there is no question of vindicating the public wrong proceedings are initiated by a state official, variously styled the State attorney or dist. attorney, who takes the place of the private prosecutor in England. The summary jurisdiction in the U.S.A. follows much the same course as in England, and similarly all the stages of procedure from grand to petty jury. Again as in England, there are juvenile courts for the trial or correction of young children or young persons. As regards appeal the accused can, in all the states, petition the trial court for a new trial, which, however, will be granted only if the court thinks the conviction cannot stand in law. Generally, too, the accused may appeal to a court of higher instance both on a question of law and on a question of fact; but there is this cardinal difference from the practice that prevails in the Eng. court of criminal appeal, that the Amer. court cannot hear new evidence nor vary the sentence, but is restricted to either quashing the conviction or remitting the case for re-trial. See R. Pound, *Criminal Justice in America*, 1930; S. S. and Glueck, *Crime and Justice*, 1930.

Criminology is that part of sociology which relates to the morbid psychology of criminals. It is now generally termed criminal anthropology. It investigates the physical and psychical peculiarities observable in criminals, and the practical results of this more searching inquiry into the genesis of crime are to be seen in the changed methods of prison discipline, the careful treatment of juvenile criminals, and the preventive detention of habitual criminals (see *CRIMINAL LAW*). The science of C. is comparatively new, and the impetus given to its study is due to the work of Lombroso. It is true that long before Lombroso produced his celebrated and highly controversial *L'uomo delinquente* some form of classification of criminals had been attempted, various definitions of moral insanity propounded, and a greater measure of sympathetic consideration given to the life of a criminal

than when most crimes were punishable by death and imprisonment. But there was a want of precision in thought and much misleading generalisation. Attention was directed solely to theories of punishment. Without inquiry into the pathology of crime it seems merely to have been assumed that the criminal in some manner ill defined was to be 'improved' at all costs; with that philanthropic object in view treatment began, as it were, at the wrong end; societies influenced by the work of Howard sentimentalising over the hard lot of the prisoner and expending every effort in making prison life as comfortable as circumstances would permit. Something in the nature of a moral astringent was required if social reform in this direction was to be more than a name; and such a healthy corrective was more than forthcoming in the teaching of Lombroso. Having for a considerable time closely examined all classes of criminals, Lombroso in 1876 pub. his remarkable work setting forth the theory of the existence of an unmistakable criminal type: a type of congenital criminal whose instinctive propensity to criminal habits was easily discernible by various peculiarities of physiognomy and physical conformation. Broadly speaking, criminologists of the Lombroso school infer the following physical characteristics *inter alia* among criminals generally, although not all are displayed by the same individual. Thieves have small and murderers large heads. The shape of the head is remarkable for abnormality or irregularity. Defective conditions often occur in the cerebral region. The lower part of the face has a heavy appearance, the weight of the lower jaw being much above the average, and the forehead is receding. The ears are large, prominent, and outstanding, with other abnormalities. Wrinkles are strongly marked, and occur frequently in the young. Left-handedness is common, and not infrequently criminals are ambidextrous. The respiratory apparatus is deficient; pigeon-breasts, imperfectly developed chests, and stooping shoulders are common. Swindlers were noted to possess much greater sensibility than either murderers or thieves. There is also obtuseness in the sense of taste, especially among women. Sexual precocity in all forms is excessive. Alcoholism in either of the parents was found to be frequently associated with criminality in the offspring. The psychical peculiarities observed by criminologists include some very remarkable emotional characteristics. Their morbid vanity was very marked, a fact which accounts for an otherwise inexplicable omission to take proper precautions against leaving clues. Capital trials have an irresistible attraction for many criminals. Intemperate and gambling habits are frequent—indeed, form a stimulus to wake them from an habitual lethargy; but criminals are also capable of short periods of great activity. Lombroso noted that some were remarkable for spontaneous outbursts of excitability.

These views have by no means found

universal favour. One objection is that the above peculiarities may often be observed in perfectly honest and kindly people. There is some ground, too, for supposing that Lombroso was generalising from a few particular instances. In England there was a small group colloquially termed the 'mad doctors' who supported the criminal anthropologist school; but for the most part the safer doctrine of responsibility for crime is embraced. It may be doubted, however, whether Lombroso's theory of irresponsibility implies insanity in the generally accepted senses of that word. On the contrary, most criminologists, in classifying criminals and enumerating their physical and psychological characteristics or abnormalities, draw a clear distinction between the insane criminal and those not insane. Lombroso himself, however, was strongly opposed to any undue leniency of treatment. Logically, however, if Lombroso's theory of instinctive criminality be true, no theory of punishment can be justified that aims at retribution or vindication, for a man can hardly be held responsible for acts he cannot help committing. The older school of mental pathologists generally classed the congenitally criminal among the morally insane. Dr. Pritchard defined moral insanity as consisting in a morbid perversion of the natural feelings, affections, inclinations, temper, habits, and moral dispositions, without any notable lesion of the intellect, or knowing and reasoning faculties, and particularly without any maniacal hallucinations; and observed that no such disorder had been recognised in the Eng. courts of judicature, or even admitted in general by Eng. medical writers. Medicine and law have ever been at variance over theories of responsibility, and nowhere does this variance become wider than in the different views of the moral effect of delusions. Medicine, it may be said, generally adopts the view that a single delusion implies a disease of the brain in its entirety; the law abstains from any such pathological inquiry and imputes criminal responsibility wherever it can prove, not an abstract conception of right from wrong, but the capacity of knowing right from wrong with reference to the circumstances of any particular case (see CRIMINAL LAW). The term moral insanity is not always used in the same sense by the authorities. Dr. Hack Tuke calls it emotional insanity, and refers to an exalted form of it which tends to pass into delusional insanity, and other forms which assume a destructive character, such as homicidal mania. But he observes that it is popularly employed by medical men in the limited sense of perversion of the moral nature by disease or defect without intellectual disturbance and without any necessary association with irresistible impulses; the 'ego being perverted through an abnormal condition of the cerebral organisation, constitutional or acquired.' In this limited sense the morally insane stand in the unfortunate position that the weight of medical opinion imputes disease in

some shape or form, while the law, looking solely to the assumed unimpaired state of the intellectual faculties, imputes responsibility. There is, however, a considerable amount of latent ambiguity in the adopted classifications of criminals. Lombroso's *delinquente nato*, or congenital criminal, on any classification of criminals, forms but a small proportion of the aggregate of criminals or criminal types, although it seems doubtful whether he did not include under one comprehensive type—instinctive criminal—all who displayed in varying degrees some or most of the physical and psychological characteristics above enumerated. Havelock Ellis points out that the instinctive criminals do, however, constitute the most serious part of the prison pop., in that they reveal criminality in its most emphatic shape, and present those signs of abnormality, degeneracy, or disease, physical and psychological, which are to be found in a less well-marked form in other types or classes of criminals. These other types or classes are somewhat loosely and unscientifically classified into (a) criminals by passion, (b) occasional criminals, (c) habitual or professional criminals, (d) insane criminals. This so-called clinical classification is faulty, in that it co-ordinates types evolved from subjective considerations with classes that appear to be types of criminals by reason only of the objective consideration that they happen to commit a criminal act. Moreover, although in fact most of these classes display in more or less strongly marked form the physical and psychological peculiarities already enumerated, it has to be conceded that the person who commits what in Fr. law is called a *crime passionnel*, is not usually characterised by any abnormality or degeneracy. Again, no better reason for the inclusion of the 'occasional' criminal can be offered than that he betrays an inability to resist any opportunity of crime that presents itself. The habitual or professional criminals are by Prof. Enrico Ferri divided into two classes, the weaker and degenerate who commit crime helplessly, and the more strictly professional criminal who deliberately follows a career of crime and shirks no difficulties afforded by hazardous enterprises. These, it is conceded, do not usually show any marked physical or psychological abnormality. The obvious commentary on the attempt to relate, more or less closely, all or most classes of criminals to types of specified abnormal peculiarities is that the criminologists, having found an undoubted type in the morally insane exhibiting in a well-marked degree peculiarities of character and anatomy, attempt to fasten such peculiarities in greater or less degree upon all who happen to commit a crime. The last class—the insane—comprises those whose intellectual faculties are unquestionably impaired. Insanity in the technical sense according to Esquirol, and most subsequent writers, comprises mania where hallucination extends to all manner of objects, monomania where it is confined to one or a small number of objects, dementia where the subject is

rendered incapable of reasoning in consequence of some functional cerebral disorder not congenital, and idiotism connoting a congenital malformation in the brain. Even the law must exculpate those falling within the above classes who commit crime except, in the case of the monomaniac, where a particular knowledge of right and wrong is believed to be capable of proof. The exclusion of by far the greater number of the prison pop. from any conclusive suspicion of abnormality—especially the habitual or professional criminal—suggests the natural inference that there is no truly instinctive criminal type at all. In fact, the value of cranial measurements, etc., depends on the recognition that these abnormalities are the result rather than the cause of moral delinquency. The chief glory of Lombroso and his school, however, is their insistence that C. must concern itself with the individual. Their study of the biological and social cause of criminality lifted C. out of the traditions of the classical school which treated crime as something to be analysed only from the point of view of the penologist, and C. became instead a positive social science.

By an extension and not a refutation of Lombroso's work, Garofalo, Lombroso's great successor, and other criminologists of the modern positive school examine not only the physiology, but especially the mind and the psychic impulses of the criminal. They are concerned above all with the underlying motive of criminality, and they discover it in the mental and emotional condition of the criminal. It is shown that there is no sharp distinction between sanity and insanity, and as a result of the researches of Freud (*q.v.*) and his followers the hypothesis of the unconscious mind is well estab. The causation of a criminal act can be traced back through the unconscious by the psycho-analytic method which Freud initiated. The morally insane criminal becomes therefore more answerable for his acts and yet at the same time less responsible, as his real motives often lie outside his consciousness. But psychological C. dismisses any theory of punishment and is not concerned with retribution. The aim of psycho-analysis is therapeutic, and for this reason one branch of C. extends beyond the identification and capture of the criminal to the treatment of him in detention. The criminal is regarded as having a defective sense of citizenship, and it becomes the business of prison authorities aided by a psychiatrist to cure this defect. This theory of punishment is extended to include even murderers. The conviction seems to grow ever stronger that poverty or other adverse environment has far more to do with habitual crime than innate propensity, and to that end punishment is directed ever further along the lines of correction or reformation, and even further removed from the traditions of a *lex talionis*, or any other form of punishment, the dominant element of which is retribution.

See T. and J. Beek, *Medical Juris-*

prudence, 1838; J. Bucknill and D. Tuke, *Psychological Medicine*, 1874; W. Tallaack, *Penological and Preventative Principles*, 1889; H. Gross, *Criminal Psychology*, 1911; M. G. Schlapp and E. H. Smith, *New Criminology*, 1928; A. F. Brockway, *A New Way with Crime*, 1928; A. Morris, *Criminology*, 1934; O. Kinberg, *Basic Problems of Criminology*, 1935; L. Page, *Crime and the Community*, 1938; and M. A. Elliott and F. E. Merrill, *Social Disorganisation*, 1941.

Crimmitschau, see KRIMMITSCHAU.



CRINOLINE

Early nineteenth century.

Crimp, one who decoys men into the naval or military (but especially naval) service. Apparently, the usual method employed is to ply a man with drink and then induce him to sign articles of service. Section 111 of the Merchant Shipping Act, 1894, provides that only a person who holds a licence from the Board of Trade, or who is the owner or master or mate of a ship, or is the servant and in the constant employment of the owner of a ship, or is a superintendent, may engage a seaman to be entered on board any ship in the United Kingdom. There is a further provision that no one may receive any seaman to be so entered if he knows that the seaman has been engaged in contravention of the Act. The penalty is a fine not exceeding £5 for each offence.

Crinan Canal, Argyllshire, Scotland. It connects C. Loch with Jura Sound at Ardrishaig. It is about 9 m. long and 24 ft. broad, and its construction was completed in 1801.

Crinoidea, see ENCRINITES.

Crinoidea (Gk. *κρίνον*, lily; *ἴδωρ*, form), beautiful class of pelmatozoan echinoderms containing about 400 living species and many fossil forms; the extinct crinoids are usually spoken of as stone-lilies, and the existing species as sea-lilies. In general structure they resemble other echinoderms, such as the star-

fishes, but they have many features peculiar to themselves. Some of the best-known species are *Anledon* (or *Comatula*) *rosacea*, the feather-star, *Rhizocrinus lofolensis*, which occurs at great depths of the Atlantic, and *Pentacrinus aserius*, which is found in the Pacific.

Crinoline (Lat. *crinis*, hair; *linum*, flax, linen), name given to a stiff horsehair fabric formerly used to distend women's skirts. A wired structure worn beneath the gown to widen the garment at the hem was also called a C. The name is also often applied alike to the Elizabethan farthingale (*q.v.*), the later hooped petticoat used in the eighteenth century, and to the nineteenth-century bustle with a petticoat four or more yards wide at the hem. The hoop was first made of wood, then of whalebone or steel. About the year 1866 people began to see the absurdity of the fashion and its popularity declined rapidly from that time. In millinery, a material made of cotton gauze dressed with glue and used for manufacturing hats, is known as C.

Crinum, genus of Amaryllidaceae, contains nearly one hundred handsome plants, many of which form the greatest ornaments of our gardens. They are naturally tropical and subtropical, but they will grow well in England. *C. asiaticum*, the poison bulb, is a native of the E. Indies; its bulbs are powerfully emetic and are used in Hindustan to produce vomiting when poison has been taken. *C. amabile* is another beautiful native of the E. Indies.

Cripple Creek, co. tn. of Teller co., Colorado, U.S.A. It lies on the Midland Terminal railway and also on the Florence and Cripple Creek railway. This tn., which stands at an elevation of 9800 ft., is the centre of a large gold-mining dist. which has developed very much of late years and includes other tns. which are situated near to C. C., among them the tn. of Victor. Pop. 1400.

Cripples. Where crippling has not been caused by accident or as an effect of war, it usually has its origin in poliomyelitis or infantile paralysis. In tuberculosis, or in some congenital disease. Welfare centres and clinics deal to a certain extent with the infant cripples, but it is not until they have attained school age that crippled children receive due care.

In 1890 Mrs. Humphry Ward made provision for C. in her settlement in Tavistock Place, London, being a pioneer in this matter. Good work was later performed by Mrs. Grace Kimmins, wife of a late chief inspector of the L.C.C. Education Dept. As founder of the Heritage Schools of Arts and Crafts for Crippled Boys and Girls (1904) at Chalvey, Sussex, she trained thousands of children from three to sixteen years of age to become self-reliant citizens, in many cases able to earn their own livelihood by such work as cabinet-making, tailoring, shoe-making, or embroidery. In 1908 the Lord Mayor Treloar Cripples' Hospital and College was founded by Sir Wm. Treloar at Alton and Hayling Is., to afford curative treatment for children up to

twelve years of age suffering from tuberculous diseases of bones or joints, and technical education for boys from fourteen to eighteen years of age. The C. home and industrial school at Winchmore Hill trains girls over eight years of age in dressmaking, while the Fine Needlework Association for Invalid Women and Girls, in Kensington, London, employs embroidresses and needleworkers above the age of fifteen years. The Stratford-on-Avon weaving school provides a means of whole or partial support for crippled girls. London, Bristol, Oswestry, and Pinner have all large orthopaedic hospitals, and the Invalid Children's Aid Association (1888), 117 Piccadilly, W., has branches throughout London to help the suffering children. In 1920 a bureau of information, the Central Council for the Care of C., was estab. at 117 Piccadilly. The L.C.C. provides fifteen scholarships yearly to crippled children between the ages of fourteen and seventeen years. In Great Britain, the Invalid Children's Aid Association and the Central Council for the Care of C. have had considerable influence on progress in local welfare. Educational and propaganda work is done by both societies to inspire practical efforts in solving problems relating to persons handicapped by physical defects. The aim of these societies is to secure co-operation for the estab. all over the kingdom of a central open-air hospital, supported by a chain of clinics. Since 1928 a number of new orthopaedic hospital schools have been estab. by the Central Council, which is now a federation of all orthopaedic interests, lay and medical, public and voluntary. See G. Girdleston, *The Care and Cure of Crippled Children*, 1925; Central Council for Care of C., *Handbook on the Welfare of Cripples*, 1937; and J. Colson, *The Rehabilitation of the Injured*, 1944.

Cripps, Sir Stafford (b. 1889), Eng. politician and lawyer, fourth son of Sir Alfred C., first Baron Parmoor—whom he followed into the ranks of Labour politicians: educated at Winchester and Univ. College, London. Studied first for the ministry but turned to the law. Called to the Bar, 1913, K.C., 1927, Fellow of Univ. College, 1930. Ed. legal works on compensation (as had his father before him) and on eccles. law. Treasurer of World Alliance for Promoting International Friendship through the Churches. Solicitor-general in the second Labour Gov., 1930-31. Elected Labour M.P. at E. Bristol by-election, 1931. Withdrew into opposition on the formation of the first National Gov. and from the Labour party's executive when the party supported economic sanctions against Italy. Recalled to the party's executive, he advocated a united front with the Communists, but this was rejected by the party conference of 1937. Later he began a campaign for a popular front composed of Labourites, Liberals, Communists, and Independent Conservatives, and was driven out of the Labour party, 1939; but on giving up the campaign he was readmitted. In May, 1940, it was

announced that he would lead a Brit. trade mission to Moscow in an attempt to find a basis of agreement between the Brit. and Soviet Govs. on economic questions, but the Soviet Gov. refused the offer. In June 1940 he was appointed Brit. ambas. to Moscow, staying in Moscow until 1942. In the same year he became lord privy seal and leader of the House of Commons. From 1942 to 1945 he was minister of aircraft production; and in the Labour Gov. which took office in that year was successively president of the Board of Trade, minister for economic affairs, and chancellor of the Exchequer. Pubs.: *Why this Socialism?* (1934); *The Struggle for Peace* (1936); *Democracy Up-to-Date* (1938); editor of *Cripps on Compensation* and of *Cripps on Church and Clergy*.

Crissa, see CRISSA.

Crises (commercial or financial). Broadly speaking a commercial crisis is due to an over-extension of national credit (*q.v.*). John Stuart Mill, in his analysis of the phenomena of a C., strikes the true note in the predisposing cause when he speaks of the inclination of the mercantile public to increase their demand for commodities by making use of all or much of their credit as a purchasing power in the hope of making a profit. Various theories have been propounded to account for the apparent periodicity of C., but in this connection this periodicity is only attained by co-ordinating both greater and lesser C., and by ignoring the fact that the greater scientific precision and prudence of modern commercial dealings tend to increase the intervals between commercial C. and to lessen their gravity. It seems unnecessary to look further for the psychological explanation of recurrent C. than in the facts of human nature itself. The desire to increase one's wealth by enormous profits on a comparatively small capital outlay is one which owes its origin and strength to the rise and development of joint stock companies. The public almost loses sight of the tremendous historical lesson of the S. Sea Bubble. A boom in a particular commodity will, if cleverly organised, attract public subscriptions to an almost unlimited extent, regardless of the facts of political economy. The strain on credit due to the over issue of paper money consequent on accommodation given by banking houses to such speculative companies soon leads to a reaction and a demand for the liquidation of liabilities in cash. Panic, however, in the sense of a run on banks is not fortunately a necessary corollary to a crisis. Public confidence in its credit may be restored by various means, such as the authorised issue by the Bank of England of notes for a lower amount or the suspension of the Bank Charter Act; and such steady influences have often operated to avert disaster. Apart from predisposing causes, a commercial crisis, according to Mill, appears to exhibit these phenomena: a great number of merchants and traders more or less simultaneously apprehend that they will have some difficulty in meeting their engagements,

owing to the recoil of prices after they have been raised by an intense spirit of speculation embracing many commodities.

The exciting cause of this spirit of speculation is to be found in some accident, such as the opening of a new foreign market, the promise of a new field of supply, to meet indications of a short supply of great articles of commerce. Prices rise and the holders of stock or shares realise, or appear to be able to realise, huge gains. Speculation, aggravated by the mushroom growth of rival concerns, goes far beyond what might have justified the original expectation of a rise of prices, and then extends itself to other articles. The prices of these latter rise like the other articles, involving a great extension of credit. People at once give as well as take credit more freely than in normal times. A reaction sets in and prices fall, not merely to a normal level, but far below, with the result that where before credit was practically illimitable, even firms of estab. repute are unable to obtain their customary credit. In extreme cases unreasonable panic may ensue, money being borrowed at exorbitant rates of interest, and sales of goods made for absurdly low cash payments. Mill points out that it is not universally true that the contraction of credit characteristic of a crisis must have been preceded by an irrational extension of it. The crisis of 1847, for example, was not caused in the manner above described, but by a combination of circumstances tending to reduce the available supply of capital in the loan market. Those circumstances were the high price of cotton and an unprecedented importation of food necessitating considerable foreign payments, the continual demands on circulating capital (*q.v.*) by railway calls, and the loan transactions of railway companies, for conversion into fixed capital. In the annals of our commercial hist. the crisis arising out of the failure of the S. Sea Company stands out as the greatest financial disaster of all. But the draining of the country's capital to carry on the war against the armies of the ambitious Louis XIV. crippled the national resources, and brought many of the richest families to absolute penury. This crisis was the more notable for the reason that it occasioned the rise of the Bank of England through the good offices of Paterson, who instituted its progenitor, the Bank of Issue, for the purpose of issuing notes covered (*see COVER*) by an equal amount of gov. securities. The whole banking system, indeed, springs from this source. Other 'bubble' companies there have been subsequently, but none to approach the S. Sea Company in magnitude of disastrous consequences. The crisis of 1826, which followed on over-speculation, was due primarily to the rapid increase of the number of banks, no vil. of any pretensions being without one. The accommodation in the way of discounts to small traders led to absolutely unrestricted issues of paper money in the country banks. The currency as a consequence became redundant, and the Bank of Eng-

land was unable to meet the heavy drain on its bullion when the country banks began to endeavour to resume cash payments. The result was a run on all the banks as soon as it was realised that they could obtain no accommodation in London.

There was a crisis in 1836, following on the collapse of abortive speculative schemes, with results nearly as disastrous as in 1825. The next crisis appears to have followed on the great railway mania in 1845. It is recorded that at this period the railways completed, in course of construction, or projected, represented 1263 companies, with a total capital invested of £113,612,018, and total liabilities £590,447,490. The damage to the public credit by this fever of speculation in railway schemes was further aggravated in 1847 by the failure of the potato crop in Ireland, which involved an estimated loss of some £13,000,000 sterling. The explosion of the ensuing speculation in Indian corn brought about a fall in price and the ruin of some eighteen colossal business houses of London and the provs., with liabilities exceeding £1,500,000. The next great crisis was in 1857, a serious feature being that up to this time C. seem generally to have followed one another at intervals of ten years. The crisis of 1857 was remarkable for the fall of the famous house of Overend, Gurney & Co., in consequence of suspicion breathed against its members in connection with certain shady transactions relative to the 'coal warrant swindles.' Their liabilities were over £11,000,000. Since this collapse the commercial world has been startled at intervals by sundry disasters, private failures, and the collapse of limited liability companies, e.g. the failure of the Royal Bank of Liverpool in 1867, and the City of Glasgow Bank in 1878.

A notable financial crisis in the U.S.A. occurred in 1907 and was followed by a Bill enabling banks to issue currency on security of other than gov. bonds. The failure of the Birkbeck Bank was redeemed by the fact that the society was able at once to pay 10s. in the £ and hold out hope of future payments. For some years before the outbreak of the First World War, academic discussions had taken place with regard to the adequacy of the gold reserve, and there were many who predicted that in the event of a sudden rush on the banks, gold reserves in the Bank of England would be insufficient to meet requirements. These prophets little realised the stern test to which the whole system of Brit. finance would be put by the events which followed so quickly upon the declaration of war by Great Britain on Aug. 4, 1914. The London Stock Exchange closed its doors on July 31; to have remained open longer would have been to invite disaster, as London would have been flooded with securities and the stock of Eng. gold would have been considerably diminished. The Bank of England became practically the only source from which money could be borrowed, and it was forced to raise its discount rate from 4 per cent to 8 per cent

on July 31, and to 10 per cent on Aug. 1. The bank holiday was extended by royal proclamation from Aug. 4 to Aug. 6. The Bank of England was indemnified by a letter from the gov. against liability for the issue of notes in excess of the limits imposed by the Act of 1844. This cover was, however, only necessary for a few days. The gov. decided to issue £1 and 10s. currency notes and an Act known as the Currency and Bank Notes Act was passed on Aug. 6, and currency notes were actually in use the next day (see under CURRENCY). By this timely measure the gold reserve was husbanded and the need for currency which had been felt during the extended bank holiday had been supplied. (On emergency measures taken in the United Kingdom to avoid a financial crisis see *Financial and Monetary Policy in Second World War* in article BANKS AND BANKING.) See Kirkaldy, *British Finance, 1914-21*; J.S. Mill, *Principles of Political Economy*; Burnley, *Romance of Modern Industry*; W. S. Churchill, *The Crises, 1931*; H. A. L. Fisher, *The Facts behind the Crises, 1931*; Lord Melchett, *Why the Crises?*, 1931; E. Cannan, *Economic Scarcities, 1933*; I. Fisher, *Booms and Depressions, 1933*; and G. Sloccombe, *Crises in Europe, 1934*.

Crispi, Francesco (1819-1901), It. statesman, one of the great founders of It. unity, was b. at Ribera in Sicily. He was an advocate at Naples when the Palermo revolt broke out in 1848. Taking a leading part in this, he had to escape to Piedmont, where he earned a scanty living as a journalist. Expelled in 1853 as a republican conspirator he fled to France, was again expelled, and joined Mazzini in London. In 1859 he returned to Sicily in disguise to foment rebellion against the Neapolitan Gov., and in 1860 assisted Garibaldi in the expedition which swept the Bourbons out of S. Italy. He was appointed to important posts, first in Sicily and afterwards in Naples, but when Victor Emmanuel's army arrived and the Two Sicilies were annexed, Garibaldi and C. found their occupations gone. The latter entered the Parliament at Turin, and distinguished himself as an ardent republican; but in 1864, recognising that only the monarchy could unify Italy, he became a supporter of Victor Emmanuel. In 1867, on the occasion of Garibaldi's rash attack on the papal states, C., foreseeing that the movement would certainly fail and injure the national cause, tried to check his former leader, but without success; the catastrophe came, and led to the retention of a Fr. garrison at Civita Vecchia. During the Franco-Ger. war, however, this was withdrawn and C. with other patriots practically forced the It. Gov. to occupy Rome. When the Liberals came into power (1876), C. became president of the Chamber, and in 1877 went on an important political mission to London, Paris, and Berlin, holding negotiations which prepared the way for the formal estab. of the new kingdom in 1878, when on the death of Victor Emmanuel of Savoy his son was crowned as Humbert I. of Italy. When

Pope Pius IX. *d.* in 1879 the Sacred College proposed holding their electoral conclave abroad, but C. persuaded them to remain in Rome, promising absolute freedom and protection, adding, however, that if they went the Vatican would be occupied by the state. They decided to remain, and a dangerous problem for the new kingdom was thus solved. Soon after this C.'s opponents brought against him a charge of bigamy, which, though not legally substantiated, as his first marriage was declared invalid, yet so affected his reputation that he was out of office for some years; but returning as premier in 1887, he took up a strong foreign policy, warmly promoting the views of the Triple Alliance, and treating France with decided coldness. His party was overthrown in 1891, but in 1894 he was again premier, and an anarchist attempt on his life told greatly in his favour; but in 1895 the terrible disaster of Adowa, where an It. army was annihilated by the Abyssinians, ruined his gov., and he never resumed office. An attack upon him for alleged misuse of public money failed; he resigned his seat for Palermo, but was re-elected by an immense majority. His eyesight, however, gave way, and he afterwards took little part in public affairs. He *d.* at Naples. See G. Salvemini, *La Politica Estera di Francesco Crispi*, 1919; and B. Croce, *Storia d'Italia, 1871-1915*, 1928.

Crispin, Saint and Martyr, lived during the third century. He, with his brother Crispianus, is said to have left Rome for Gaul, and to have carried on the trade of a shoemaker while there, thus becoming the patron saint of shoemakers. In 287 the two brothers were put to death, and their martyrdom is commemorated on Oct. 25.

Crissa, or Crisa, tn. of anct. Greece in Phocis, was situated S.W. of Delphi near Mt. Parnassus, remains of its old walls still being in existence. Some people have identified it with Cirrha, but the general opinion is that Cirrha was the port, although the two were intimately connected in anct. hist. Owing to large tolls having been levied on pilgrims visiting the oracle, war was declared by the Amphictyons at the beginning of the sixth century, and both tns. were taken.

Cristineaux, see CREES.

Cristofori, Cristofali, or Christofani, Bartolommeo (1655-1731), *b.* at Padua. He was a maker of harpsichords, and after carrying on his business in Padua for some time, was eventually asked by Ferdinando de' Medici to go to Florence, where he remained until his death. He was also the first one to employ 'hammers' in the mechanism of the piano.

Critchett, Richard Claude, see CARTON, R. C.

Criterion Theatre, London, was opened in 1874, and was originally joined to Messrs. Spiers & Pond's Hotel, being built underground. In 1875 Wyndham obtained a share in the management of the theatre. In 1884 it was re-opened under the management of Wyndham after having been reconstructed, *Brighton* and

The Candidate both proving successes. In 1886 Wyndham appeared with Miss Mary Moore in *David Garrick*, one of his greatest successes. After this old plays were revived, among them *Wild Oats*, *The School for Scandal*, *She Stoops to Conquer*, and *London Assurance*. Other plays: *Young Woodley*, by J. W. van Druten (1929), and plays by Terence Rattigan.

Critias, pupil of Socrates, but was not a follower of his doctrines, at any rate after he had passed from the sphere of Socrates' personal influence. In Athens he led the oligarchical party, and in 404 B.C. he was the chief one of the body known as the Thirty Tyrants, practising in that capacity many excesses and cruelties. In the same year, 404 B.C., he fell in the battle of Munychia, fighting against Thrasybulus. He was also a writer of poetry, and is said to have written a work on politics.

Critical Temperature, that temp. below which it is possible to liquefy a gas by applying pressure. The conditions which are necessary for the liquefaction of gases were discovered by Dr. Andrews in 1879. He discovered that below 31° C. carbon dioxide could be liquefied, but that above it no amount of pressure could produce this effect. Every substance has a definite C. T., associated with which is a definite pressure. For a long while oxygen, nitrogen, hydrogen, carbon monoxide, and marsh gas were known as the permanent gases, because their C. Ts. are so low that it is only within comparatively recent years that it has been possible to cool them below their C. Ts., and so to liquefy them, *e.g.* air must be cooled below -140° C. at a pressure of thirty-nine atmospheres, and hydrogen below -241° C. under fifteen atmospheres before they can be liquefied. All gases have now been liquefied, the most difficult to liquefy being helium.

Criticism, Biblical. A certain study of the sacred text has always existed, but the growth of biblical studies in the nineteenth century has led to a classification into two separate depts., which have been named (1) Lower or textual C. and (2) Higher C. It follows of necessity, from the variations found in the early scriptural texts, that the first people who made an effort to prepare an ed. of the O. and N. Ts. practised this art in some degree. The early Fathers may thus be termed textual critics, to a certain extent. In the last century however, such great strides have been made in this subject, that the term is generally reserved to the work of this period. The autographs of the scriptures are no longer extant, and in the various copies that remain there are many differences of text. These differences have arisen in various ways, some from the errors of copyists, some from the interpolation of glosses or marginal comments into the text. It is the work of the textual critic to collate all the texts at his disposal and all parallel documents which may throw light on the subject. From these he attempts to find out the original autograph readings. The field for the

N.T. C. is rendered the larger by the fact that a great number of MSS. have come down to us. The most useful text of the N.T. is E. Nestle's *Novum Testamentum Græce et Latine* (1906). The groundwork for this ed. had been laid by Westcott and Hort's excellent *New Testament in the Original Greek* (1881) and the text of Tischendorf.

(2) Higher C., on the other hand, deals not with establishing the text but, taking these studies as its point of departure, examines minutely internal evidence in order to reach conclusions on the date, authorship, and nature of the book, also external evidence in order to place the book in its historical setting. The higher critic must discuss the books of the Bible literally, historically, and theologically. A work of primary importance is the dating of the various writings, and the settlement of their authorship. This C. was first applied to the O.T. by Jean Astruc, a Fr. physician, whose work, entitled *Conjectures sur les mémoires originaux dont il paroît que Moïse s'est servi pour composer le livre de la Genèse*, was published in 1753 with some doubt by the devout Catholics, lest it should become an instrument in the hands of the freethinkers. In this work he points out the distinction between the two sources (Jahvistic and Elohist) of the book of Genesis, and his position has been supported and extended by modern critics. The next important name in O.T. C. is that of Eichhorn, who applied Astruc's system of examination to the rest of the Pentateuch. The introduction of these methods of historical study into the realms of sacred thought was viewed with horror by the ultra-orthodox, and vigorous attempts were made to stop it. Both sides tended to exaggerated claims. But after a century of controversy a middle position is establishing itself. Outside the Rom. Catholic Church the Mosiac authorship of the Pentateuch is generally abandoned, and Isaiah is believed to be the work of two or more independent writers. In N.T. C. the extreme radical views of certain Ger. and Dutch scholars have now been generally rejected, and although there is no sign of any return to the traditional idea of the verbal infallibility of the N.T. writers, the general historical accuracy of the synoptic gospels (i.e. Matthew, Mark, and Luke) is reaffirmed by the majority of competent critics. The historical character of the fourth gospel is still in dispute. The authenticity of the Pauline Epistles is accepted, with reservations in the case of Ephesians and the Pastoral Epistles.

Partly owing to the large amount of new material that has come to hand in the last half-century, our knowledge of the N.T. has become more accurate and scientific, and we have passed to a new stage of the task of C. In the nineteenth century (and down to 1914), whereas N.T. scholarship had concerned itself largely with critical analysis of documents, and through such analyses sought to solve problems of authorship, date,

principles of composition, sources, derivations, and the like, these questions no longer stand at the centre of interest. The tendency now is to assume these general results as estab. and to examine further questions in the light of what the different schools of thought consider proved. The new C. is less analytical than synthetic, though the use of this word in this context does not imply putting together what was originally separate. Rather it means an attempt to reveal a unity already present, though disguised by varying forms of thought and expression, and by the idiosyncrasy of the individual writer. The true use of the higher C. has been finely summed up by Strachan in his article 'Criticism' (O.T.) in the *Encyclopedia of Religion and Ethics*. 'Since all light and truth are of God,' he says, 'biblical science can bring the churches and nations nothing but good. It is inevitable that the art of criticism should sometimes be practised by men of little faith, or of no faith, and that in their case the critical spirit should be captious rather than sympathetic, the critical weapon destructive rather than constructive. The fault is not in the instrument but in the user.'

The higher C. developed later in England than on the Continent, and on the whole has followed moderate lines, as may be seen from the above quotation: an outstanding work was Prof. Driver's *Introduction to the Literature of the Old Testament*. Among the moderate critics may be cited the works of J. B. Lightfoot, W. H. Sanday, and B. F. Westcott. Cheyne and Black, of the *Encyclopædia Biblica*, are more radical. See Anderson, *The Bible and Modern Criticism*, 1893; Höpfi, *Die Höhere Bibelkritik* (2nd ed.), 1905; Vigouroux, *Les Livres Saints et la Critique Rationaliste*, 1886; A. Peake, *Commentary on the Bible*, 1925; and C. Gore, *A New Commentary on Holy Scripture*, 1928. See also T. K. Cheyne, *Founders of Old Testament Criticism*, 1893; J. Wellhausen, *Prolegomena zur Geschichte Israels*, 1899; G. A. Smith, *Modern Criticism and the Preaching of the Old Testament*, 1901; A. Robinson *The Study of the Gospels*, 1902; and B. H. Streeter, *The Four Gospels*, 1924. For separate books of the Bible see the vols. of the *International Critical Commentary*, Westminster Commentaries, and Clarendon Bible, especially works by Rawlinson, MacNeill, Barnard, and Balmforth.

Criticism, Literary (Gk. κριτική, judge, umpire; κρίνειν, to distinguish, decide, interpret), involves the study and interpretation of literary art, and itself forms a branch of literature. Matthew Arnold spoke of it in its widest significance as 'a disinterested endeavour to learn and propagate the best that is known and thought in the world.' In a more limited sense it is the unprejudiced analysis of the merits and defects of some particular literary work, or the attempt to estimate the relative position of an individual writer in literature. L. C. may be considered from two sides—theory and practice. The theory of it falls within the study of

æsthetics, that is, it comprises the study of the nature of beauty, and of the nature and function of art. The critic, in examining the underlying principles of art, not infrequently tends to confuse æsthetic with ethical considerations. As these principles are interpreted differently in different times, so we obtain changes in taste. Thus, the theory of L. C. may be said to be the philosophy of taste, while the practice of it is the hist. of taste. Matthew Arnold asserted that it was impossible to criticise without re-creating. An artist attempts to give his conception of the ideal truth which nature imperfectly expresses. He does not merely imitate what he sees or transcribe what he hears, but he chooses those things which fit in with his general conception of truth. While the artist selects, arranges, and creates, it is the function of the critic to explain the principle of selection, and, by his interpretation, to re-create for his age the great creative works of all time.

From its very nature L. C. must be of late birth in the literary hist. of a nation. Previous to Aristotle, Plato had discussed, in the second book of his *Republic*, the nature of the distinction between lyric, epic, and dramatic poetry; he, and also Isocrates, had examined and discussed the rules of rhetoric; and Aristophanes had delivered a pungent C. of the plays of Euripides in the *Frogs*. But Aristotle is generally recognised to be the founder of L. C. Every true critic must turn to the *Poetics* for the fundamental principles of his art, though, of course, many of Aristotle's words cannot be accepted to-day or must receive a modern interpretation. For his experience was limited in that he knew no literature save that of his own country. However, Aristotle examined the literature which he knew with wonderful perspicacity. He discusses general theories, deduced chiefly from Gk. drama, and also deals with certain technical matters, such as the uses of various metrical forms as a medium for poetic thought. After Aristotle, the critics of any note are those who belonged to the Neoplatonist school, whose chief work was to analyse the nature of beauty. Among them must be reckoned Proclus, Crates, Aristarchus, Zenodotus, and Plotinus (trans. into Lat. 1492).

Rom. literature did not produce many great critics apart from Cicero and Horace. The former was chiefly interested in the rules of rhetoric. The canons of poetic art, set forth by Horace in some of his epistles and satires, as well as in his *Ars Poetica*, had a great influence on the correct school of the eighteenth century. In these works he discourages any departure from the rules laid down by the Gks., but gives no very illuminating or independent C. of art. Other Rom. critics who may be briefly noticed here are Servius Maurus Honoratus, who wrote an elaborate commentary on Virgil; and his contemporary, Macrobius (about A.D. 400), who wrote a dissertation in seven books, entitled *Saturnalia Convivia*, on hist., and mythology. A late Gk. writer, whose one extant work must be men-

tioned on account of its far-reaching influence, is Cassius Longinus. In *Heptachyos, On the Sublime* (written about A.D. 260; printed 1554), Longinus lays great stress on a hitherto not much discussed aspect of beauty, namely, the harmony of words and the dignity of style.

Until the works of Dante and Boccaccio were pub. in Italy, there was no critical work produced in the Middle Ages apart from one or two rhythmical treatises, such as the *Ars rhythmica* of John of Garlandia. During the Renaissance there was a large output of humanist C., the chief works of this kind, produced in Italy, being Marco Girolamo Vida's *De Arte Poetica* (1527); Joseph Justus Scaliger's *Poetica* (1561); Castelvetro's *Poetica* (1570); Patrizzi's *Poetica* (1586); and Tasso's *Discorsi* (1587).

It was about this time that critical literature began to be written in England. It is true that Chaucer had paid homage to his masters, Dante, Petrarch, and Boccaccio, and, in his reference to the 'false gallop' of chivalrous verse, as well as in his delightful rhyme of *Sir Thopas*, had shown clearly what he thought of the romantic ballad, but it is not till the age of Elizabeth that C. was written as such. Elizabethan C. did not attempt to analyse or interpret the works of individual writers, but dealt with the remoter subjects of classification of writers or their works according to the literary form employed, and with technical considerations of metre. Thus literary controversies raged round the question of observing quantitative rules in writing Eng. verse, and the far more important question of the function and legitimacy of art. 'From the Elizabethans to Milton, from Milton to Johnson, English criticism was dominated by constant reference to classical models.' It was the richness and freedom of the ancients, that had chiefly appealed to men like Marlowe and Spenser, but many had allowed their imagination to run riot.

A reaction against the uncurbed freedom of the Elizabethan writers began with Ben Jonson, who urged the necessity of restraint and discipline in art, and insisted that the learned 'do use an election and a mean.' His Cs. may be found in the introduction to his plays, and in *Timber, or Discourses upon Men*, etc. In his *Conversations* with Drummond of Hawthornden he made some acrid comments on his contemporaries, but he was capable of the most generous praise, as in his *Ode to Shakespeare*. The new school, of which Dryden was the head, accepted certain laws or principles of art, formulated by Aristotle, Horace, or such Fr. critics as Cornille and Boileau, and closely adhered to them on the assumption that they were fixed and invariable. They found fault with the Elizabethans for their lawlessness, and only admired correctness, proportion, and harmony. The members of the new school possessed, however, many of the qualities which constitute a good critic. The Elizabethans were, in general, so busy creating that they did not stop to analyse their own words or the words of their fellows.

It was essentially a creative age. The writers of the so-called classical school lacked inspiration, but possessed keen, alert minds, an observant eye, and a judicious spirit. Their weakness as critics lay in their desire to standardise literature, to classify everything according to rule. Dryden was called by Dr. Johnson 'the father of Eng. criticism.' He was certainly the greatest critic of his age; it is a matter of opinion whether he has ever been surpassed in that particular sphere. Dryden inaugurated two new methods of L. C., the comparative and the historic. The Elizabethans in a haphazard way had employed the comparative method. That is to say, they were fond of classifying authors according to the form or subject-matter of their works. Dryden preferred to compare the merits of sev. works rather than those of their respective authors. His method is entirely different from that of any previous critic. He does not dogmatise, but in an incomparably easy and pleasant manner takes the reader into his confidence, discourses with him, and finally persuades him into his own way of thinking. The finest of Dryden's critical writings is the *Essay of Dramatic Poesy* (1667). His other essays are prefixed to his *Annus Mirabilis* (1667); to his *Fables, Ancient and Modern* (1700); and to his various plays. In them he examines the relative merits of classical Fr. and Eng. drama and discusses certain questions of metre. Though lacking in supreme artistic sensibility, he possessed a catholic taste and fine literary discrimination. He was quick in picking out the salient features of the men under discussion, and couched his Cs. in a vigorous and incisive form. In his enthusiastic but discriminating eulogy of Shakespeare, Dryden conciliated a prejudiced audience, and estab. the position of that poet for all time.

The editing and annotating of Shakespeare form an important part of the work of the eighteenth century. Nicholas Rowe (1673-1718) was one of the earliest of these editors. His ed. appeared in 8 vols. (1709-14). Pope's *Shakespeare* was pub. in 6 vols. in 1725. In the following year Lewis Theobald (1688-1744), 'the Porson of Shakespearean criticism,' pub. *Shakespeare Restored*, which was followed in 1727 by *Proposals for Publishing Emendations and Remarks on Shakespeare*, and in 1733 by a 7-vol. ed. of the dramatist. Dr. Johnson's ed., which included the labours of former critics, was completed in 1765. In the latter half of the century appeared the work of three painstaking and scholarly editors, Capell (10 vols.), 1768; Steevens (10 vols., in revision of Johnson), 1773; Malone (10 vols.), 1790. In 1821 appeared the famous ed., commonly called *Boswell's Malone*, in which Reed and James Boswell collaborated. Throughout the eighteenth century L. C., undoubtedly through the example set by Dryden, was very much occupied with the work of individual writers. Milton continued to hold the high throne on which Dryden had set him. Addison (1672-1719) wrote eighteen papers on the great poems of Milton,

passing by, according to the taste of his times, the *Juvenilia* as almost beneath C. Dr. Johnson's famous *Lives of the Poets* was pub. in 1778-81. Johnson, like his contemporaries, had great regard for what the *Rambler* called 'the indispensable laws of Aristotelian criticism.' He had little, if any, artistic sensibility, and no great love of what is purely imaginative beauty. He was, too, hampered as a critic by his strong literary and personal prejudices, and by his tendency towards didactic moralising. Nevertheless, his judgments are generally sound and discriminating, and his work is full of wise reflections on life.

The appearance and subsequent development of the weekly magazine or review gave rise to a new kind of L. C.: the short critical essay. The great prose writers of this period—Addison, Steel, Swift, Johnson, Goldsmith, and the rest—all contributed to the papers of the day, the chief of which were the *Tatler*, 1709-1711; the *Spectator*, 1711-12; the *Rambler*, 1750-52; the *Idler*, 1758-60; the *Public Ledger*, 1759-98; the *Bee*, 1791-94; the *Monthly Review*, etc. In Addison's essays on *Wit and Humour* we may find the first tentative writer on æsthetics, on the philosophy and science of art. Pope's *Treatise on the Bathos* was pub. in 1727. Mark Akenside's *Pleasures of the Imagination* in 1744, its final form appearing in 1772; Edmund Burke's *Philosophical Inquiry into the Origin of our Ideas on the Sublime and Beautiful* in 1756, and from 1769 to 1791 Sir Joshua Reynolds (1723-92) delivered his famous discourses on art at the Academy.

The change in L. C. which occurred at the dawn of the nineteenth century preceded a change in literary taste. The transition from the old order to the new was gradual, and signs of revolt from the rules and methods of the Augustans are apparent in the work of such poets as Goldsmith, Gray, Collins, Crabbe, and Cowper. The Romantic movement was marked by naturalism, or a breaking away from the sophistication of society with a consequent return to nature, and by medievalism or Gothicism, stimulated by what Gray called 'the rude, the savage, the tremendous.' Both aspects of the new school of literary art are present in the *Lyrical Ballads*, pub. in 1798. The preface of the 1800 ed. contained Wordsworth's justification of his poetic diction. Dryden had argued that, as poetry is an idealised representation of life, the language of poetry must be removed from the language of real life. Wordsworth astounded his contemporaries by asserting that 'there neither is nor can be any essential difference between the language of prose and verse.' Not only did he release poetry from the trammels of artificial diction, but he widened men's conception of it by showing that art is the supreme achievement of human consciousness.

The change in taste from the rational to the mystic coincided with a change in idea of the function of L. C. The C. of absolute standards gave place to that of imaginative appreciation. Coleridge, in his course

of lectures on the Eng. poets (1808 and 1811-12), and in his *Biographia Literaria* (1817), regards the function of C. to be reverent interpretation. In this respect he himself revolutionised Shakespearian C. in England, and estab. the position of Wordsworth as a poet. Coleridge was much influenced by his studies of the Ger. classics. The C. of the Romantics had a new aim with higher principles. By their study of the literature and hist. of ant. and modern nations, their field of comparison was enlarged, and they obtained a wider tolerance. L. C. meant to the new school a C. of life, whose function it is to throw light on the dark places of human thought and history, upon the growth and subtle transformation of spiritual belief. Carlyle spoke of 'the poetry of criticism; for it is in some sort also a creative art; aiming, at least, to reproduce under a different shape the existing product of the poet; painting to the intellect what already lay painted to the heart and the imagination.'

It is impossible in a short article to dwell in any detail on the characteristics of individual writers. The chief critics, not already mentioned, of the early part of the nineteenth century, and their more important work may be briefly noted: Lamb, *Spectimens of English Dramatic Poets* (1808); 'Essays of Elia' in the *London Magazine* (1820), and *Last Essays* (1833); Peacock, *Four Ages of Poetry*, which provoked Shelley's *Defence of Poetry* (1820); De Quincey, *Confessions of an English Opium Eater* (1821) and *German Prose Classics* (1826-27); Hazlitt, *Characters of Shakespeare's Plays* (1817), *Lectures on the English Poets* (1818), *Lectures on the English Comic Writers* (1819), *Lectures on the Dramatic Literature of the Reign of Elizabeth* (1821), and *The Spirit of the Age* (1825); Landor, *Imaginary Conversations* (1824-28 and 1829); Macaulay, 'Essays' in the *Edinburgh Review* (1825); Leigh Hunt, *Lord Byron and some of his Contemporaries* (1828); and Carlyle, 'Essays' in the *Edinburgh Review* and other magazines (1827-33). From the above list the general features of the work may be observed. All the early nineteenth-century critics were interested in the function of poetry in the nature of poetic imagination, and in the relation between art and science. For many years a controversy continued round the work of Wordsworth, and it was not till the closing years of his life that his position as a poet was publicly recognised. His poetry and the nature of his spiritual insight were continually discussed by his younger contemporaries. The work of these writers is also distinguished by its revaluation and enthusiastic admiration for seventeenth-century Eng. writers, and, to a certain extent, by its interest in European literature.

The magazines and reviews estab. at the beginning of the nineteenth century are of great importance in the hist. of Eng. C. The chief of these influential organs were *The Quarterly Review* (1800), *The Edinburgh Review* (1802), *The Blackwood Maga-*

zine (1816), and *The London Magazine* (1817). In them we find for the first time L. C. affected by the political bias of the writer. The outstanding figures of late nineteenth-century L. C. were Matthew Arnold, Ruskin, and Pater. Arnold's works of C. include *Essays in Criticism* (1865 and 1888), *On the Study of Celtic Literature* (1867), *Literature and Dogma* (1873), and *Mixed Essays* (1879). The philosophic C. of the second decade of the twentieth century derives from him, but was separated from him in point of time by the impressionist C. of Swinburne, Pater, and Symonds, followed by the scholarly C. of Gosse, Saintsbury, Walter Raleigh, Sir Arthur Quiller-Couch, and Israel Gollancz. From these derives a careful literary research pursued diligently in England and America.

The character of modern L. C. changed from the trenchant tone of the nineteenth century, e.g. Macaulay and *The Edinburgh Review*, to one of comparative mildness. Individualistic and impressionistic trends prevailed. There was little or no awareness of schools and a conspicuous indifference to general æsthetic considerations. However, although contemporary England has not yet been able to produce a really great critic many brilliant contributions have been made. The most active in the field of theoretical æsthetics was Lascelles Abercrombie (1881-1938), the author of *An Essay towards a Theory of Art* (1922) and *Romanticism* (1926). To the closely allied field of æsthetic technique Abercrombie contributed *The Principles of English Prosody* (1923). Here also belong Robert Bridges's studies of classical and Eng. prosody, Percy Lubbock's study of fiction in *The Craft of Fiction* (1921), E. M. Forster's *Aspects of the Novel* (1927), and George Moore's comments in *Conversations in Ebury Street* (1924). One of the most important developments of L. C. is in the psychological interpretation of critical values. Here the contemporary leader is I. A. Richards (b. 1893), who in his *Principles of Literary Criticism* (1925) and *Practical Criticism* (1930) is primarily concerned with the study of the processes of comprehension and evaluation. Further work in this field has been done by Herbert Read (b. 1893), and F. R. Leavis (b. 1895) in his *New Bearings in English Poetry* (1932). The leader in æsthetic C. of the classical school and one of the most distinguished of contemporary critics is T. S. Eliot (b. 1888). He makes a general plea for tradition and classicism as canons of C. and literature and has done valuable work in reinterpreting such great figures of the past as Dante, Donne, and Shakespeare. His counterpart in America is the critic Irving Babbitt. At the opposite extreme are the impressionistic critics of whom Arthur Symonds (1865-1945) was the chief exponent. His critical creed was formulated under the personal influence of Walter Pater. Among what might be called the sociological critics G. K. Chesterton (1874-1938) was the most versatile and lively, though he sometimes sacrificed soundness of judgment to the

temptation of turning an epigram. His attitude to life was definitely conservative and in this Wyndham Lewis (b. 1886) is somewhat akin to him, in contrast to the critical radicalism of Bernard Shaw (b. 1856) and the eclectic liberalism of Havelock Ellis (1859-1939). On the borders of biography and C. brilliant work has been done by Harold Nicolson on Tennyson and Byron and by J. Middleton Murry on Keats, Shakespeare, and D. H. Lawrence. The most readable and scholarly hist. of Eng. literature has been produced by two Frenchmen, Émile Legouis and Louis Cazamian. Leading Eng. contemporary book reviewers include Desmond McCarthy, Charles Morgan, Robert Lynd, Harold Nicolson, Raymond Mortimer, V. Sackville West, and V. Pritchett. Van Wyck Brooks is a leading Amer. critic.

In France the earliest work of L. C. was the *Défense et illustration de la langue française*, which was pub. in 1549 by Joachim du Bellay. This work, together with Ronsard's own writings on the art of poetry and the *Art poétique* of Vanquelin de la Fresnoye (1574, printed 1605) contain the literary theories of the *Pléiade*, whose general object was to bring the Fr. language both in its application and vocabulary on a level with the classical tongues, mainly by borrowing from them. Though the *Pléiade* achieved much that it desired, its members no doubt went too far in their luxuriant importations and innovations and provoked to some extent the reaction which began about 1600. The new movement for the neo-classic or anti-romantic which swept Europe was inaugurated by François de Malherbe (1555-1628). In the words of Boileau, 'Rinfin Malherbe vint,' and the strict Fr. classical school had begun. Malherbe's influence as a critic was great and far-reaching, but by no means wholly beneficial. From his time dates that deplorable falling off of the more poetic qualities of Fr. poetry which continued well into the nineteenth century. Malherbe was supported in his revolution by Regnier, far superior to him as a poet, who often had the sense to oppose and ridicule Malherbe's innovations, Vaugelas, Balzac ('the Malherbe of prose'), and finally by Corneille in his famous prefatory discourses. René Rapin systematised the neo-classical ideal in sev. works, most of which appeared between 1668 and 1674. Le Rapin and the Jesuits Le Bossu and Bouhours illustrate in their writings most forcibly the crippling rigidity of formal classicism. At the close of the seventeenth century Nicolas Boileau-Despréaux (1636-1711) stands out as the leading literary critic in France. In his famous *L'Art poétique* (1674) he analyses the various kinds of verse composition and summarises the principles peculiar to each, as well as laying down rules for poetic diction. His *L'Art poétique* occupies in Fr. literature a place parallel to that of Horace's *Ars poetica* in that of Lat. During the greater part of the eighteenth century neo-classicism ruled supreme in European literature, with Voltaire, Buffon (who

coined the phrase 'the style is the man'), Marмонтel, La Harpe, and Suard as its most distinguished exponents in France.

In Germany the doctrines of Scaliger and Ronsard were reproduced by Martin Opitz (1597-1639). His *Buch von der deutschen Poeterey* (1624) became the theoretical textbook of the Ger. Renaissance and regulated Ger. literature for the next hundred years. The innumerable literary societies, such as the Fruchtbringende Gesellschaft, which at that time were being formed all over the country in imitation of the Accademia della Crusca in Florence, helped to further Opitz's reform and did a real service to the Ger. language by purifying it from foreign ingredients. Later in the seventeenth century the 'second Silesian school' arose in opposition to the first school of Opitz. Its leading exponents were D. C. von Lohenstein (1635-83) and Christian Hofmann von Hofmannswaldau (1617-79), who cultivated a bombastic and euphuistic style similar to that of the It. Marini and the Sp. writer Góngora. The next critic of consequence arose with J. C. Gottsched (1700-66) in Leipzig, who between 1724 and 1740 estab. literary reforms on the lines of Fr. seventeenth-century classicism. His chief work was his *Versuch einer kritischen Dichtkunst für die Deutschen* (1730) and incorporates the principles of Boileau. Gottsched was convinced that Ger. literature could advance only if subordinated to the laws of Fr. classicism and he trans. many Fr. plays which were to serve as models to Ger. dramatists. In 1740 he came into conflict with the two Swiss writers and critics J. J. Bodmer and J. J. Breitinger who, under the influence of Addison and contemporary It. critics, demanded that the poetic imagination should not be hampered by rules. Gottsched was adamant, and in the ensuing controversy between Leipzig and Zurich he was inevitably defeated. But it was Gottfried Ephraim Lessing (1729-81) who dealt the death-blow to Gottsched's Fr. pseudo-classicism and led the way back to the truly classic art of ant. Greece. His two prin. critical works are the famous *Literaturbriefe* and his *Hamburgische Dramaturgie*. He was an enthusiastic protagonist of Shakespeare and looked to England and not to France for the regeneration of the Ger. theatre. His own dramas were examples pointing the way. J. G. Herder (1744-1803) carried on where Lessing had left off. He aimed at crystallising national feeling in poetry and ridicules the ambition of Ger. writers to be classic, as Lessing had ridiculed their desire to be Fr. (see his *Fragmente über die neuere deutsche Literatur*, 1767).

Modern, or romantic C., came in with the final downfall of the neo-classical tradition in Europe at the very close of the eighteenth century. As Lessing paved the way for it in Germany, so had Diderot in France. The two brothers August Wilhelm (1767-1845) and Friedrich Schlegel (1772-1829) provided the theoretical basis of Romanticism. In contrast to the older school they insisted

that the first duty of the critic was to understand and appreciate—genius could not be judged by preconceived code of principles. It is impossible here to go into the further development of L. C. in the nineteenth century in any detail and reference should be made to the account of the literature of the country concerned. In France, Sainte-Beuve remains of supreme importance and his work has survived many changes of opinion. He was followed by T. Gautier, St. Marc, Girardin, P. de St. Victor, and many others, down to Taine and the school of individualistic critics. Tolstoy's *What is Art?*, a most revolutionary work, appeared in the last quarter of the nineteenth century. In Germany, while much has been written on L. C., no name comparable to that of Lessing has become outstanding either for originality or great insight among modern critics. As in other countries, writers of eminence in other fields have contributed to L. C. in their own field, and mention may be made of R. M. Rilke's letters where poetry is discussed, and of the noted novelist Thomas Mann who has contributed a vol. of L. C. on various subjects.

See Sir T. Hall Chubb, *Cobwebs of Criticism*, 1883; B. Bosanquet, *A History of Aesthetics*, 1891; G. Smith, *Elizabethan Critical Essays*, 1897; W. B. Worthington, *The Principles of Criticism*, 1897, and *Judgment in Literature*, 1930; G. E. B. Saintsbury, *The History of Criticism and Literary Taste in Europe, 1600-4*; S. H. Butcher, *Aristotle's Theory of Poetry and Fine Arts*, 1902; J. E. Spingarn, *Seventeenth-century Critical Essays*, 1908; G. Murray, *The Classical Tradition in Poetry*, 1927; T. S. Eliot, *Selected Essays*, 1932, and *The Use of Poetry and the Use of Criticism*, 1933; J. W. H. Alkins, *Literary Criticism in Antiquity*, 1934, and *English Literary Criticism: The Renaissance*, 1948.

Critolaus, Gk. philosopher, b. at Phaselis in Lycia. He became the chief of the Peripatetic school after Aristotle, whose pupil he had been. He was chosen to accompany Carneades and Diogenes to Rome. The mission was successful, and the 500 talents which the Athenians had asked back from the Romans were sent with those ambas.

Crittenden, John Jordan (1787-1863), Amer. politician, b. in Versailles, Kentucky. He was a senator, 1835-41. In 1841 he became attorney-general in the Cabinet of President W. H. Harrison. From 1848 to 1850 he served as governor of his state. In 1850 he served in the Cabinet of President Fillmore as attorney-general, and from 1855 to 1861 again in the Senate. In the Civil war his influence was marked in keeping Kentucky from seceding from the Union. In 1861 he was elected to the National House of Representatives, where he stoutly upheld the gov. in its war-making policies, but bitterly opposed dividing Virginia into two states and the enrolment of Negro slaves as soldiers. He d. at Frankfort, Kentucky.

Criovelli, Carlo, Venetian painter, who lived in the fifteenth century, and seems to have been the pupil of Antonio Murano.

The chief among his works are 'Madonna and Child Enthroned,' 'Madonna in Ecstasy,' 'Saints Catherine and Mary Magdalene,' 'The Twelve Apostles,' 'Coronation of the Virgin,' and 'The Annunciation.'

Croaghpatrick, mt. of Ireland in the co. of Mayo, situated on the S. shore of Clew Bay and to the S.W. of Westport. It is about 2500 ft. high.

Croatia-Slavonia, formerly a crownland within the Austro-Hungarian Empire, later a prov. of Yugoslavia, and now two separate republics of the federation



Yugoslav Embassy

WEAVING AT HRASTOVICE, CROATIA

The woman wears the traditional dress of her village.

of Yugoslavia. Croatia, the larger portion of C.-S., lies in the W., extending from the Adriatic to the R. Drave. The R. Danube also separates C.-S. from Hungary, the R. Save from Bosnia on the S. Area is 16,920 sq. m. The surface is largely mountainous and hilly. There are wooded offshoots of the Julian and Styrian Alps (2000-4000 ft.). The S. of Croatia includes part of the cretaceous Alpine highlands, known as the Karst dist., with deep-cut valleys and subterranean water-courses. There are also the Zagreb highlands, the Great and Little Kapella, and the Velebit Planina (about 5700 ft.). There are also alluvial and diluvial plains, fertile valleys, and many forests in the hills of oak, beech, elm, and pine. The lower parts of Slavonia are unhealthy, through marshes and swamps, while Croatia's coast-land is exposed to the Adriatic currents and the ravages of the

Itora, which sweeps down like a hurricane from the Karst. Otherwise the climate is moderate, and the land generally fertile. Crops of wheat, pulse, maize, flax, hemp, potatoes, and tobacco thrive. Much fruit is grown in the S.—apples, nuts, grapes, etc. The plum-brandy, 'Silvovitz', is famous, and some wines are produced. Beautiful cotton and silk fabrics are manufactured, and there are silk, glass, and sugar mills. Among the exports are grain, fruit, timber, and flour. Horses, sheep, swine, and other live-stock are reared. The chief minerals are coal and lignite (Ivansčica, Bilo, Požega, Vrdnik Mts.), iron ore, zinc, lead, and copper, but they are not important. The people are largely engaged in agriculture. The inhab. are mainly Croats or Serbs (89 per cent.), about 5 per cent. are Gers., and there are also a few Hungarians, Magyars, and Jews. Nearly three-quarters of the pop. are Rom. Catholics, the rest are mostly members of the Gk. Orthodox Church. The *zadrugas*, or family communities, are a characteristic feature of their social life. These consist of ten to twenty persons under the rule of a *domacin* or *glavnik*. Manufs. and education are improving, but still some 44 per cent. of the pop. are illiterate. The cap., Zagreb (now cap. of Croatia), has a univ. Other large tns. are Varazdin (Varazd), Karlovac Gorulj, Eszék, Brod, Mitrovica, and Zimany. The port of Fiume (Rieka), originally in C.-S., was given an independent existence under the treaty of Rapallo concluded with Italy in 1920. Eventually (1924) the port was partitioned, Fiume itself being allotted to Italy and Port Baross and the Delta to Yugoslavia; but by the 1947 peace treaty with Italy, Fiume was ceded to Yugoslavia. Other important trading ports in C.-S. are Zeugg and Porto Rê. The total pop. of C.-S. is about 3,000,000.

History.—The Croats (Chrobates and Chorvates) are Slavs, their language differing little from that of the Serbians or Serbs. C.-S. was originally included in the Rom. prov. Pannonia. In the seventh century A.D. it was colonised by Croats from the Carpathians. In the ninth century they adopted Latin Christianity. About 900 a kingdom, including Bosnia and Dalmatia, was established, and proclaimed independent of the Byzantine emperors. This kingdom lasted for nearly two centuries. From the close of the eleventh century to the middle of the fifteenth its hist. was closely linked with that of Hungary. From then till the end of the seventeenth century it was under Turkish occupation. From 1777 to 1868 there were constant separations from Hungary, notably under the famous *ban*, Jellachich, 1848. At the reorganisation of the Austro-Hungarian monarchy (1867–68) a compromise was agreed upon. In 1818, after the collapse of the Habsburg monarchy, C.-S. joined the newly formed kingdom of the Serbs, Croats, and Slovenes. For administrative purposes Yugoslavia by the terms of the 1921 Constitution was divided into *oblasti* or prefectures. There were four *oblasti*

in C.-S., each sending deputies to the National Assembly in proportion to the pop., one deputy to every 40,000 inhab. With the abolition of the constitution the former provs. of Yugoslavia, together with the names Croatia, Slavonia, etc., were also abolished, and the country was divided into nine *banats*, each under a *ban* or governor nominated by the king. The *banats* were named after the rivs. (e.g. Sava, cap. Zagreb), but the boundaries of what was formerly C.-S. were not very much altered. Politically C.-S. became the stronghold of the National Agrarian party, and under their leader, Stefan Raditch, the Croats opposed the centralist government. This opposition came to a head in 1928 when attempts were made to make C.-S. autonomous. Raditch was assassinated by a member of the Serbian Radical party, and soon after (Jan. 6, 1929) Alexander (q.v.), king of Yugoslavia, abolished the National Assembly and united the country under a royal dictatorship. The National Assembly was replaced by a Supreme Legislative Council, consisting of eleven Serbs, four Croats, and two Slovenes.

The attempt of the old Serbian politicians to impose their domination on Croats was one of the factors which made democracy impossible in Yugoslavia between the world wars. Partition of Yugoslavia followed the Ger. occupation in 1941, and on April 10 the 'independence' of Croatia was proclaimed; on May 13 a treaty was signed between Germany and the puppet Fascist state of Croatia determining the boundaries between them. All the Axis countries recognised the independence of Croatia, but the Yugoslav Gov. protested against the Axis partition and the dismemberment of Croatia. After the 1941 partition Croatian Fascists, led by Ante Pavetic, massacred tens of thousands of Serbs in Bosnia, but subsequently when Tito's partisan army was formed Croat and Serb peasants joined each other in Marshal Tito's forces, and in 1943 Croats and Serbs were fighting side by side against Gers., Chetniks, and Ustaše or Serb and Croat Quislings. Following the defeat of Germany and Italy Yugoslavia was proclaimed a people's republic under the name of the Federal People's Republic of Yugoslavia, consisting of six constituent republics, of which the three most important are Serbia, Croatia, and Slavonia, all being of the Soviet type. See further under YUGOSLAVIA. See R. W. Seton-Watson, *Absolutism in Croatia*, 1912; C. Battorich, *The Martyrdom of Croatia*, 1920; J. Buchan (ed.), *Yugoslavia*, 1923; and G. Ellison, *Yugoslavia, Country and People*, 1933.

Croce, Benedetto (b. 1866). It. philosopher and critic, b. at Pescasseroli, Aquila. Began education at Catholic boarding-school in A. ples. In 1883, by the earthquake of Casamicciola in the is. of Ischia, C. lost his parents and only sister, and was buried for hours under ruins and severely injured. Afterwards he lived at Rome with his uncle Silvo Spaventa, a Conservative leader. Returning to

Naples in 1886, he became known as a local antiquarian. His philosophical disquisitions arose out of his historical studies and began in 1893. He also devoted attention to the economic doctrines of Marx. In 1902 commenced pub. of his works on the philosophy of the spirit (*Filosofia dello Spirito*)—derived from Neapolitan thinkers: Giambattista Vico (c. 1688–1744), who held there was a 'common nature' in mankind ruling men's actions despite individual aims; Bertrando Spaventa; and Francesco de Sanctis (1817–83). The Absolute is found to be a beginningless and endless Activity; Aristotelian concepts virtually disappear; intuition becomes all-important, because reality is exhausted by the four pure concepts—Beauty, Truth, Usefulness, and Goodness. Obviously, then, not only man but every conscious being is a creator. Matter is mere lumber, whose origin and laws (if it can be said to have any) are unimportant, and whose mechanism is a contemptible appearance—instead of being the terrible obstacle it has heretofore been to those concerned about the freedom of the will. The difficulty of inducing belief that man is a creator in the biblical sense—'let there be light,' 'let there be sea,' 'let there be fishes'—is overcome by denying separate reality to light and sea and fishes. C. was made a senator in 1910, and minister of education from June 1920 till July 1922. Unlike Giovanni Gentile, his former colleague in many scholarly enterprises, who took office under the Fascists and helped to provide them with an ideological basis, C. not only refused to co-operate with them but was active with his pen against their anti-liberal forces. His repute and standing were so high that even Mussolini did not take drastic measures against him. It is quite a remarkable fact that C.'s book *History as the Story of Liberty*, which contained one of the profoundest expositions of the ideals for which the United Nations were fighting in the Second World War, should have been pub. in Fascist Italy in 1938. His philosophy of the spirit, or rather his concept of truth as hist., substitutes for the 'melancholy picture of a blind humanity groping in darkness the heroic picture of mankind rising from light to light.' His other works are most voluminous. *Filosofia dello Spirito* consists of three parts: *Estetica come scienza dell'espressione e linguistica generale* (1902), *Logica come scienza del Concetto puro* (1904), and *Teoria e Storia della Storiografia* (1912). He wrote also *Storia d'Italia da 1871 al 1915* (1928) and *Storia d'Europa nel secolo decimono* (1932). He pub. his *Autobiography* in 1918 (new ed. 1926, Eng. trans. 1927). See H. W. Carr, *The Philosophy of Benedetto Croce: the Problem of Art and History*, 1917; and A. M. Fraenkel, *Die Philosophie Benedetto Croces und das Problem der Naturerkenntnis*, 1929.

Crochet (Fr. *crochet*, or *croc*, meaning hook), kind of knitting which consists of loops made with a hooked needle drawing one through the other to form an open

or solid fabric, the hook being held in the right hand and the thread and resultant work in the left. For over 100 years C. has remained a favourite adornment for table linen, tray cloths, and mats. It is also used on church vestments and altar cloths. Fine lace collars adorned the dresses of our grandmothers. C. edgings decorated their underlinen and fine lingerie, and C. chair back covers (anti-macassars) were also much in evidence. Shetland shawls, slippers, bags, and purses can be made in a C. stitch. Luncheon mats, for use on the table instead of tablecloths, are practical, decorative, and serviceable, and can be carried out in soft-coloured threads, particularly écar, to tone in with modern furnishings. Other materials used are cotton, mercerised cotton, pure or synthetic silk, fine gold thread (especially for filigree work), etc. A hook should be selected which is suitable in size to the thread used: large bone hooks for heavy wools and cottons, and fine steel hooks for thin cotton, mercerised, or flax lace thread.

Two chief kinds of C. are Ger. and Victorian. *German* consists of sev. different kinds of stitches, including the common chain stitch, single stitch, treble stitch, double stitch, etc.

Victorian or Tunisian C. is sometimes known as C. knitting because all the stitches of a row are held on one long straight hook, a row of chain is worked to form the base and each stitch is then looped on the hooked needle to the end. The thread is then twisted round the hook and passed through one loop, then twisted round again and drawn through two loops, and all the stitches are worked off in this way to the end. This kind of C. results in a soft pliable piece of work, suitable for pram or cot blankets, covers, scarves, slippers, etc.

Hairpin C. is worked on a large steel hairpin, or two-pronged fork, with a hooked needle. Insertions, fringes, and dollies can be made in this way.

Bosnian C. is a special kind of work which can be carried out in various colours; it resembles braid, is strong and yet elastic. It is therefore useful for waistbands, etc. It is comprised of single stitches, the arrangement of colours forming the pattern.

Designs of exquisite patterns are nowadays available to the C. worker on the chart principle, which enables the elaborate pattern to be more easily followed than tedious directions. C. can be done in odd moments; it may be worked in one whole piece, or in small separate pieces of varying shapes which are later joined together by stitches, as in *quipure* lace, etc. Fine lace collars may consist of separate stars, squares, lozenges, etc., joined to form a collar with varying length treble stitches and finished with a picot edging. There are fine classic examples of this, the result of much painstaking work of a passing generation.

Crocidolite, mineral occurring in fibrous or asbestos-like filaments, belonging to the amphibole group. Chemically it is an iron sodium silicate. It varies in

colour, sometimes being of a golden yellow, and at others of a dull red or blue-green tint. The ornamental stone has a beautiful silky lustre. When of a blue colour it is called hawk's-eye, and when of rich golden-brown, tiger-eye. C. occurs in seams, associated with iron ores in Griqualand W. and Cape Colony. It is also found in some other places, but only in small quantities.

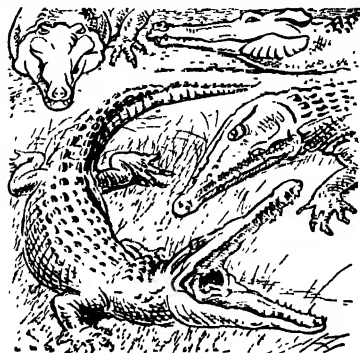
Crocket, in architecture, an ornament placed on the inclined sides of pinnacles, capitals, pediments, canopies, gables, spires, etc., of various buildings of the Early Eng. period; usually in the form of a winding stem, with buds or curled leaves projecting here and there, ending in a finial; sometimes in the form of animals. Cf. continued from the twelfth century throughout Gothic architecture.

Crockett, David (1786-1836), one of the classical types of Amer. woodsmen, hunters, pioneers, and fighters, *b.* Green Co., Tennessee. Largely self-taught. In 1813 he served under Gen. Andrew Jackson in the war with the Creek Indians. He entered politics and from 1821 to 1824 served in the state legislature. He served in the National House of Representatives from 1827 to 1831. He was a notable figure in Congress on account of his racy stories, smacking of the soil. After his last defeat for Congress, he moved into the then ter. of Texas, was soon in the thick of the fighting with the Mexicans and lost his life as one of the defenders of the Alamo at San Antonio, March 6, 1836. In the days before the Civil war 'Davy' Crockett was a hero to every Amer. boy.

Crockett, Samuel Rutherford (1860-1914), novelist, *b.* in Galloway, at Duchrae, where he was brought up on a farm. In 1886 joined the Free Church of Scotland, becoming a minister at Penicuik. He gave up the ministry, however, to pursue a literary career. His sketches in the *Christian Leader* appeared in book form as *The Stickit Minister and some Common Men* (1893). His best-known novels are *The Raiders* (1894) and *The Lilac Sun-Bonnet* (1894). Other novels and sketches include *The Grey Man* (1896); *The Men of the Moss Hags* (1895); *The Red Axe* (1898); *Maid Margaret of Galloway* (1905); *The Loves of Miss Anne Raiderland: All about Grey Galloway, its Stories, Traditions, Characters* (1904); *The Seven Wise Men* (1909); *The Smugglers* (1911); and *Sandy's Love Affair* (1913). See M. M. Harper, *Crockett and Grey Galloway*, 1907. He d. at Avignon.

Crocodilia (Gk. *κροκόδειλος*, properly an Ionic word, — (1) a kind of lizard, (2) the crocodile or alligator of the Nile), order of reptile characterised by a huge, lizard-like body, and recalling in many ways the giant Saurians with which the earth was peopled during a previous period of its existence. The whole of the existing members of the order are included in a single family, which may be subdivided into sev. generic groups; of these the most specialised are the caimans and alligators (*q.v.*). Common peculiarities of the Crocodylidae are a long and powerful

tall; a vertical longitudinal crest on the upper surface of the body, consisting of a series of horny lobes, double in the basal half of the tail and single beyond; and a protective armour, consisting of rows of quadrangular, horny shields of varying sizes, which overlap at the edges. The teeth, which are conical and may be of very large size, are confined to the margin of the jaws, where they are implanted in distinct sockets, and while in use are continually being replaced by fresh ones growing from beneath. A remarkable feature of the existing form of crocodile is the extremely backward position of the aperture of the internal nostrils, this being due to the development of special plates by the bones of the palate, which



CROCODILE

grow beneath the nasal passage so as to form a floor to it, and thus completely cut it off from the cavity of the mouth. As the summit of the windpipe is continued upwards into this posterior aperture of the nostrils, crocodiles are able to breathe while their mouths are wide open and filled with water. The stomach is globular, with a pair of tendinous centres like those of birds; the digestion is so rapid and powerful that every bone of the creature's prey is dissolved whilst still in the wide and long gullet. As regards reproduction, crocodiles lay from twenty to sixty eggs, of the approximate size of those of a goose, and covered with a hard, white shell. These are deposited in some hollow in the sand of the bank, where, after being covered to a greater or less depth, they are left for twelve to thirteen weeks to hatch. Whether the parent always assists in the incubation is not certain. The true crocodiles comprise rather less than a dozen species ranging over Africa, S. Am., N. Australia, and tropical America. The Indian crocodile, known to natives as the mugger and erroneously to Anglo-Indians as the alligator, ranges over India, Ceylon, Burma, and the Malay peninsula and Is. It is a freshwater variety inhabiting only rivers, lakes, and marshes, and in its characteristics

most nearly approaches the caiman and the alligator.

Crocoisite, see **CHROME YELLOW**.

Crocus, the chief genus of the Iridaceae, consists of many hardy species. They are to be found chiefly in the middle and S. parts of Europe and the only true Brit. species is *C. nudiflorus*, which flowers in the autumn. *C. sativus* is the saffron C., a native of Asia Minor, cultivated in S. Europe; the dried stigmas yield saffron, formerly of repute as a perfume, and as a nervine, stomachic and narcotic drug, now used chiefly as a colouring ingredient. The tn. of Saffron Walden has taken its name from its cultivation of the plant. *C. vernus* is the purple or white crocus of our gardens in spring; *C. biflorus*, the Scotch C., is a native of S. Italy.

Crœsus (c. 540 B.C.), the last king of Lydia, of the Mermnad dynasty, son of Alyattes. He conquered the Ionian, Æolian, and other neighbouring tribes, till his empire finally extended from the S., N., and W. coasts of Asia Minor to the R. Halys on the E. and the Taurus Mts. in the S. His enormous wealth was proverbial, and the phrase 'a perfect Crœsus' still survives. For the legend of his interview with Solon see Herodotus, i. 29. After the overthrow of the Median empire (549), the kings of Lydia and Babylonia leagued together against Cyrus of Persia. The Delphic oracle gave C. the ambiguous answer that if he marched against the Persians 'a great empire would be overthrown.' This proved to be his own. He was utterly defeated near Sardis and taken prisoner, 546. Accounts of his death vary greatly: Cyrus probably spared his life. The dedication in (ik. on fragmentary columns from the temple of Artemis (Brit. Museum) are by C.

Croft, or Crofts, **William** (1678-1727), Eng. musical composer, organist of St. Anne's, Soho, 1700-2; of the Chapel Royal, 1707; of Westminster Abbey, 1708. His *Musica Sacra* (thirty anthems and a burial service) appeared in 1724. St. Anne's and St. Matthew's psalm-tunes are also attributed to him, and a single chant in B. minor for the Anglican service. In early life he composed overtures and airs for various plays.

Crofter. A C. is defined by the Crofter's Holdings (Scotland) Act, 1886, to be any person who is tenant from year to year of a holding of arable or pasture land, who resides on his holding, and whose ann. rent does not exceed £30. To constitute a C.'s holding, the holding must be in a crofting par., i.e. one in which Cs. have for eighty years preceding the passing of the Act of 1886 had holdings of arable land, with a common right of pasturage. The etymology of C. is unknown, but the word *croft* (i.e. the agric. holding itself) is derived from old Eng. *croft*, meaning an enclosed field. These holdings exist for the most part in the Highlands and is. of Scotland, and consist, or did consist, for the most part of extremely scanty properties, the largest in Skye, for example, being but 7 ac. The holding in common pasture involves the periodical conversion of the holdings into

grass land. From the barrenness of the Highlands of Scotland, the condition of these joint tenants of divided farms was for long an unenviable one. Many of them, however, eked out a scanty livelihood by combining with their tillage fishing or some other vocation. Cs. for the most part seem always to have been good farmers, whence their few well-cultivated ac. generally produced a better yield per ac. than the land of the large farmer. The Act of 1886 and other amending Acts were passed as the result of much agitation to remedy the grievances of Cs., more especially in regard to security of tenure. For some time prior to the Act of 1886 there had been numerous evictions of the Cs. from their holdings, and the ensuing agitation, culminating in sev. royal commissions and many statutes, owed its strength to the belief held by the Cs. themselves that their tenancies were practically perpetual. Whether they were ever in law in a better position than an analogous class called *cottars*, who are simply squatters in dwelling-houses situate in a crofting par., seems doubtful. But the Act of 1886 gives the C. a perpetual tenure, and the landlord cannot evict him unless his rent falls into arrear for one year; or he attempts to assign his tenancy; or becomes bankrupt, or is in default in other ways specified in the Act. The Cs. Commission, however, can remove a C. on such terms as to compensation as they think fit.

Crofts, Ernest (1847-1911), Eng. artist, b. at Leeds and educated at Rugby School. He studied painting first in London under Alfred Clay and afterwards at Düsseldorf under Emil Hünten, a noted military artist. Among his pictures are 'The Retreat,' 'On the Morning of the Battle of Waterloo,' 'Cromwell at Marston Moor,' 'Marlborough after the Battle of Ramillies,' 'At the Farm of Mont Saint Jean, Waterloo,' 'Charles I. on his way to the Scaffold,' and 'Napoleon and the Old Guard at Waterloo.'

Croisic, or Le Croisic, seaport in Loire-Inférieure, France. It is a watering-place and has fisheries; salt is produced here. Pop. 2400.

Croix, tn. of France near to Roubaix in the dept. of Nord, with chemical and textile industries. Pop. 17,400.

Croix de Guerre, personal decoration for award to soldiers, sailors, or airmen of the Fr. and Belgian forces mentioned in dispatches during the two World Wars. It was instituted in both countries in 1915. 'Mentions' were usually made for individual acts of gallantry, devotion to duty, or similar feats. The decoration is, of course, different in both countries.

Croker, John Wilson (1780-1857), politician and man of letters, was educated at Trinity College, Dublin, and went to the Irish Bar, where he rapidly made headway. In 1807 he was returned to Parliament as member for Downpatrick. Perceval in 1809 appointed him secretary to the Admiralty, in which position he did excellent work, in which indeed he was so interested that he declined higher office. He retired from the Admiralty in 1830.

He was an admirable debater, and more than once overthrew Macaulay, once referring to a speech made by the historian as 'vague generalities handled with that brilliant imagination which tickles the ear and pleases the fancy without satisfying the reason.' There is no doubt that these discomfitures had much to do with Macaulay's unjust and venomous review of his adversary's admirable ed. of Boswell's *Johnson* (1831); and C.'s essay on Macaulay's *History* is, by contrast, impartial and kindly. He trans. some valuable memoirs on the Fr. Revolution (1823), ed. the *Suffolk Papers* (1823), and the *Letters of Mary Lepel* (1821-22), and collected material for an ed. of Pope's works (subsequently used by Whitwell, Elwin, and Courthope). From his pen is said to have come the famous essay on Keats's *Endymion*. An autocratic person, he made many enemies, and was contemptuously and quite unfairly depicted as Rigby in *Coningsby*, and, with as little justification, as Wenham in *Vanity Fair*. Others of his chief works are *Stories for Children from the History of England* (1817); *Memoir of the Reign of George the Second* (1818, 1884); *Essays on the Early Period of the French Revolution* (1857). He also pub. sev. vols. of verse. See W. A. Maginn (ed. W. Bates), *A Gallery of Illustrious Characters*, 1873; and L. J. Jennings, *Memoirs and Correspondence of the Right Hon. John Wilson Croker*, 1884.

Croker, Richard (1841-1922), Amer. political boss, b. at Clonakilty, in co. Cork, Ireland. His parents emigrated when he was two years old, and he settled in New York, where he received a common-school education. In 1868 he was elected alderman. He afterwards filled various municipal offices, ending as city chamberlain in 1890; meanwhile he had acquired great influence in Tammany Hall, and in that connection had fought Tweed in 1870. Soon after the death of Tweed's successor, John Kelly, in 1886, C. became Tammany Boss. After his resignation in 1902, he retired to Ireland. He trained horses; and one of them, Orby, won the Derby in 1907.

Croker, Thomas Crofton (1798-1854), Irish writer, b. at Cork. At a very early age he spent his time in collecting legends of the Irish people. His chief works are *Researches in the South of Ireland* (1824); *Fairy Legends and Traditions of the South of Ireland* (1825-28); and *Legends of the Lakes* (1829).

Crole, or Croleus, Robert, see CROWLEY.

Croly, George (1780-1860), Brit. poet and preacher of great eloquence, b. at Dublin, and educated at Trinity College, Dublin. Entered the Church of England and was eventually appointed rector of St. Stephen's, Walbrook. Was a constant writer on all sorts of subjects, whether comedy, tragedy, satire, or poetry. Also contributed many articles on biography, romance, and theology to the current magazines. His best work was *Salathiel: a Story of the Past, the Present, and the Future* (1828).

Cromagnon Race, primeval European race which entered Europe in the upper

palaeolithic and trans-neolithic ages. The name was given by Paul Broca to a number of skeletons discovered in 1868 in the C. grotto at Les Eyzies, in the Dordogne. Other typical bones come from Wales and Mentone. Tall and long-headed, the C. R. is regarded as one of the mother-races of the Nordic and Mediterranean races, and traces of this type are still found there to-day.

Cromarty: 1. Former co. of Scotland, including the promontory Ardmeanach, or Black Isle, at the head of Moray Firth, and numerous detached portions of land within Ross co., now forming part of the co. Ross and C. (*q.v.*). 2. Parl. and municipal bor., seaport, vil., and par. of Scotland. The tn. is 5 m. from Invergordon, 9 m. from Nairn, 20 m. from Inverness. Bp. of Hugh Miller, the geologist, to whom a statue was erected in 1859. The sheriff court is held here every alternate Friday afternoon. Manufs. rope, sacking, and sail-cloth, and has a herring fishery. Pop. (par.) 1600. 3. C. Firth, one of the finest bays in Britain, is a land-locked inlet of the North Sea, on the N.E. coast of Scotland, N.W. of Moray Firth. It is 18 m. long, 3 to 5 m. broad, 5 to 35 fathoms deep. It is entered by a narrow strait between the N. and S. Sutors. The Three Kings Reef is about $\frac{1}{2}$ m. from land. There is a lighthouse at the entrance. Miller discovered fossil fishes (Pterichthys, Osteolepis, and others) in the Red Sandstone near.

Cromdale, par. in Elgin, on the Spey, 3 m. distant from Grantown. Historically interesting on account of defeat inflicted on Jacobites by King William's troops in 1690. Pop. 3000.

Crome, John (1769-1821), usually known as Old Crome. Founder of the Norwich School of Artists. He was b. at Norwich of humble origin. The son of a weaver, he first became an errand boy; then he was apprenticed to a house painter, Mr. T. Harvey of Catton, observing his genius in his sketches from nature, which he painted in his leisure moments, procured him a post as drawing master, and from then onwards C. was able to give up a great part of his time to the subject he loved. His drawing of trees, meadows, sky, and clouds was very faithful to nature. He also made a particular study of Dutch pictures, and earned for himself the title 'English Hobbema.' In 1805 the Norwich Society of Artists assumed definite shape, and in 1808 he was elected president. His work received scant remuneration during his life. It was only after his death that the full value of his work became recognised. His best known productions are 'Mousehold Heath' (National Gallery, London), 'Carrow Abbey,' 'View of Chapel Fields, Norwich,' 'Clump of Trees, Hautbois Common,' 'Fish-market at Boulogne,' 'Bridges on the Ostend River.' He also made a series of etchings of his own favourite Norfolk scenery. See D. Turner, *Etchings by John Crome*, 1838; L. Binyon, *John Crome and John Sell Cotman*, 1906; and C. H. C. Baker, *John Crome*, 1921.

Crome, John Bernay (1794-1842), landscape painter, son of John C.; his style is very similar to that of his father, and his pictures have consequently been sold as being the productions of the older and more experienced painter.

Cromer, Sir Evelyn Baring, first Earl of (1841-1917), son of Henry Baring, M.P., and of Cecilia Anne, daughter of Vice-Adm. Windham of Felbridge Hall, Norfolk. Entered Royal Artillery in 1858; alderman to Sir Henry Stokes in Ionian Is. in 1861; and appointed private secretary to the viceroy of India during the years 1872 and 1876. He gained great fame for his administration of Egyptian affairs. It is due to his unremitting efforts that Egypt holds her present position among the nations. Appointed commissioner of the Egyptian public dept., and later controller-general in Egypt, he changed the gov. from a state of threatened bankruptcy into a flourishing condition; but not until the cause of the trouble, in the person of Khedive Ismail, had been removed. Amongst other appointments he acted as agent and consul-general in Egypt during the years 1883-1907. He had received K.C.S.I. for his Indian services; and was made Baron C. in 1892, viscount in 1898, and earl in 1901. It was due to his administration that the Sudan was restored to the rule of Egypt and the Brit. Empire, when the battle of Omdurman (1898) settled the question. Among his pubs. are two vols. on *Modern Egypt* (1908); and two vols. of *Political and Literary Essays*, between 1908 and 1916.

Cromer, par. and seaside resort of England, situated on the N.E. coast of Norfolk, 20 m. N. of Norwich. It is beautifully sheltered on the land side by hills, and has become famous as a watering-place on account of the fine bathing which can be obtained, and the splendid beach. The extensive golf-links add to its popularity. Its new pier was damaged in the Second World War. The sea has greatly encroached on the coast; the cliffs are protected by sea-walls. Fishing is the chief industry. The coast is extremely dangerous. There is a lighthouse visible for 23 m. Pop. 4100.

Cromlech (*crom*, bending, crooked; *lech*, stone), in archaeology, structures of a prehistoric age, often a circle of upright stone, as at Stonehenge. The name was formerly used also by Brit. archaeologists for equally old structures consisting of a large, flattish, unhewn stone resting horizontally on three or more fixed vertically in the ground. These appear to be chambered, sepulchral mounds, found in the Brit. Isles, N.W. France, Spain, N. Africa, Syria, and Japan. They mark the Neolithic age in Europe, and are now usually called dolmens, or in Guernsey and elsewhere Druid altars. The sepulchral chambers or cists beneath the mounds often contained a skeleton, with arms, stone implements, and various relics. Some attribute them to the Celts. The single stone may have been 'stones of bowing or worship' (see Armstrong's *Gaelic Dictionary*, 1825). Structures of

note of this kind are numerous in England, in Devonshire and Cornwall; there is also Kit's Coty House near Aylesford in Kent, and two structures at Plas Newydd in Anglesey. In Scotland there are the Auld Wives' Lifts near Craigmaddie House, Stirlingshire, those at Stennils in Orkney, the Standing Stones of Callernish in the Isle of Lewis, and the partially ruined Witch's Stone at Bonnington Mains near Edinburgh. See CIRCLES OF STONES, DOLMEN, MENHIR. See A. H. Keane, *Ethnology*, 1896; Leslie, *Early Races of Scotland*, II., 1866; and Borlase, *The Dolmens of Ireland*, 1897.

Crompton, Samuel (1753-1827), greatest improver of cotton manuf. through his invention of the spinning mule, for which, however, he received little recognition. B. at Bolton, Lancashire, he lived a hard-working life as farmer and weaver. It took him five years' ceaseless toil to invent the machine which was to produce the finest yarn ever woven. His spinning mule became the most popular one on the market, and was used in preference to the machines constructed by either Arkwright or Hargreave.

Crompton, cotton mill and colliery dist. in Lancashire, 2½ m. distant from Oldham. Urban pop. 15,000.

Cromwell, Henry (1628-74), son of Oliver the protector, under whom he served towards the end of the Civil war. He entered the army at twenty, and lived mainly in Ireland, accompanying Oliver there (1649) as colonel. In 1653 he was one of the Irish representatives in the Little (Nominated) Parliament. Major-general of Irish forces, 1655; lord deputy, 1657, becoming popular by his moderate policy. Recalled to England (1659) after his brother Richard's fall from power, he retired into private life. His great-grandson (d. 1821) was the last descendant of C.'s family.

Cromwell, Oliver (1599-1658), Lord Protector of England, b. at Huntingdon, was descended from a nephew of Thomas C., minister of Henry VIII. Educated at Huntingdon Grammar School and Sidney Sussex College, Cambridge, he studied law at Lincoln's Inn for a short period before marrying the daughter of Sir John Bourchier, and settled down in his native tn. It has been said that he was fond of gaming and other low pleasures in his youth, but there seems to be no real foundation for these statements, and indeed he is spoken of by others as a young man of deeply religious convictions. He sat for Huntingdon in the memorable Third Parliament of Charles I. (1628) and distinguished himself for his zeal against the bishops. After the dissolution of this Parliament he retired into the country to a grazing farm at St. Ives, where he became par. overseer and a zealous member of the religious community. In 1636 his maternal uncle, Sir Thomas Stuart, d. leaving him property in the Isle of Ely worth £500 a year, and thither, disgusted with the gov., he went with his family and, it is said, even thought of migrating to New England, actually taking a passage for himself and family

and only remaining in England because the ship by which he was to have sailed was detained by proclamation. By such chances does the fate of kings hang in the balance! In 1639 he was returned to Parliament for Cambridge, having become a popular leader and styled 'Lord of the Fens' for having kept a part of that country in Cambridgeshire from being expropriated from the people by various rapacious landowners. He sat for Cambridge in the Short and Long Parliaments, 1639-40. Sir Philip Warwick mentions him with disfavour in Nov. 1640, recording with disgust that 'he was very much hearkened to.' On the outbreak of the Civil war he contributed freely to the parl. army-chest, helped to form the E. Association, which secured E. Anglia for his party, and joined the army as a captain. Impressed by the superiority of the cavalier horse at Edgehill, he conceived the idea of encountering loyalist enthusiasm with Puritan zeal and strict discipline. Raising a troop of 'godly men' in his own co., mostly yeomen, and training them himself, they proved so efficient that the whole army was gradually remodelled on the same line. At Marston Moor he and his 'Ironsides' turned defeat into victory, and at Naseby won the decisive battle of the campaign. For these victories he received the thanks of Parliament and a pension of £2500 a year. He was now not only the greatest soldier in England, but head of the Independents, who in 1647 seized the king's person at Holmby House, and thenceforward controlled the destinies of the country. After many attempts to make terms with Charles, all thwarted by his obstinacy and duplicity, there ensued the closing tragedy at Whitehall, the justice and expediency of which are still debated. To C. and his party it seemed inevitable, but the shock to public sentiment did much to efface the impression caused by previous years of tyranny. The Irish campaign, with the massacres of Drogheda and Wexford, left a further blot on C.'s fame, though he put forward in justification the Irish cruelties of 1641, and the advisability of avoiding further bloodshed by striking terror into the enemy. The victories of Dunbar (1650) and Worcester (1651) enhanced his military reputation, and in 1653, impatient of parl. mismanagement and intrigue, he forcibly dissolved the House and set up what was practically a military despotism, thus doing what Charles had lost his crown and life in attempting. He summoned another Parliament, but this, though composed of members selected by the Army Council, proved unmanageable, and resigned its powers Dec. 1653. Four days later, under a written constitution, drawn up by a mixed council of officers and civilians, C. was installed as lord protector, with a council of state and a Parliament to be elected within nine months. The sovereign power was now within his reach, and on Feb. 19, 1654, he was formally invested with the dignity of protector of the Commonwealth of England, Scotland, and Ireland, in the Court of Chancery. As protector he

pursued a vigorous policy, making the Eng. flag respected wherever it was seen. As a ruler he was in many respects in advance of his time, introducing valuable reforms and projecting others which were defeated by the prejudices of his supporters. The principle of religious toleration was affirmed, but not allowed to apply in the case of Romanists and Anglicans, though even towards these C. seems to have been less harsh than his officials. Jews and Quakers were treated with leniency, and even attacks on religion, though dealt with severely, were not so brutally punished as of old. A strict Puritan regime for the improvement



OLIVER CROMWELL

Engraving after the painting by Robert Walker.

of morals was enforced, but its harshness bred hypocrites rather than true piety, and the reaction under Charles II. was a natural result. Education was encouraged, C. taking special interest in the univs. Though stern in repressing vice—e.g. he issued regulations to control racing—he was by no means so narrow as many of the Puritans; he enjoyed hunting and athletic sports, and was fond of music and pictures. He had enemies on all sides—Royalists, Presbyterians, Levellers, Anabaptists, Fifth-Monarchy men, all conspired against his rule, and many plots were formed for his assassination, but he did not alter his course.

His latest years were not happy; the attempt to create a House of Lords signally failed, the heavy taxes and the strict rule of his major-generals produced widespread discontent, and the constant dread of assassination affected him deeply. The death of his favourite daughter, Elizabeth Claypole, in 1658 broke him down, and his moodiness and proneness to suspicions were enhanced by the pub. of a pamphlet by Col. Titus, entitled *Killing no Murder* and designed to justify the assassination of a 'tyrant.' Despite

the attentions of his physician, he became ill of a fever and *d.* on Sept. 3, the anniversary of his victories at Dunbar and Worcester. His body was interred in Henry VII.'s Chapel, whence, at the Restoration, it was taken and exposed on the Tyburn gallows. C. was one of the greatest statesmen and soldiers England ever produced. His foreign policy had two great aims, the honour and welfare of England and the maintenance of Protestantism. To extend our trade and colonies he fought with Holland and Spain; Blake's wonderful achievements and the conquest of Jamaica form part of this story. He estab. a council for trade and granted a charter to the E. Indian Company, and his action at the time of the Vaudois persecution will never be forgotten. He raised England to a higher place among the nations than she held for many years before or after, and to him we may attribute the official foundation of our maritime greatness. Eng. sailors before had 'fought for their own hand'; C. made the navy a national institution. C. had six children: Richard, Henry, Bridget, Elizabeth, Mary, and Frances. Richard succeeded him in the Protectorate, but with the turn of the tide against him, he resigned and went abroad (see CROMWELL, RICHARD). Henry went to Ireland as lord lieutenant; Bridget married, first Gen. Ireton, and afterwards Gen. Fleetwood; Elizabeth married John Claypole of Northamptonshire; Mary married Lord Fauconberg, and is supposed to have assisted in the restoration of Charles II.; and Frances married, first a grandson of Earl Warwick, and afterwards Sir John Russell of Cambridgeshire. Of Elizabeth, the wife of C., it is said that she was a strong-minded woman and a constant spur to her husband in all his ambitions. An imposing statue, of the idealistic type, executed by Hamo Thornycroft, R.A., stands in Westminster in front of the walls of the Houses of Parliament—its fitting environment. See T. Carlyle (ed.), *Letters and Speeches of Oliver Cromwell*, 1845; S. R. Gardiner, *History of the Great Civil War*, 1886, and *Constitutional Documents of the Puritan Revolution*, 1906; Sir C. H. Firth, *Cromwell's Army*, 1912; W. C. Abbott, *Conflicts with Oblivion*, 1924, 1935, (ed.) *Bibliography of Oliver Cromwell*, 1929, and (the standard collection) *Writings and Speeches of Oliver Cromwell*, 1937; also the lives by Lord Morley, 1900; G. R. Stirling Taylor, 1928; J. Buchan, 1934; F. H. Hayward, 1934; M. Ashley, 1937; D. E. Muir, 1945.

Cromwell, Richard (1626-1712), son of Oliver the protector; his successor from 1658 till May 1660. He had served in the army and in various Parliaments under his father, but was not so strong or capable a man. The Long Parliament and heads of the army agreed to dismiss him from office, this decree being accepted without a struggle. See O. Cromwell (a lineal descendant of the protector Oliver Cromwell), *Memoirs of the Protector . . . and of his Sons*, 1820; Sir R. Tangye, *The Two Protectors*, 1899.

Cromwell, Thomas, Earl of Essex (c.

1485-1540), ambitious Eng. statesman and courtier of Henry VIII.'s reign. He served in the Fr. Army in Italy, becoming a good linguist while abroad; returned to England in 1513 and became a lawyer. He was a student of it. politics and admired Machiavelli. From 1514 he entered Wolsey's service, serving him faithfully as secretary, and speaking in his defence in the House of Commons, 1529 (see Shakespeare's *Henry VIII.*, act ii.). He became Privy Councillor, 1531, and Henry's chief minister after Wolsey's fall, being one of the king's chief agents in bringing about the Eng. Reformation and in establishing Tudor absolutism. He advocated Henry's divorce from Catherine of Aragon by exercise of royal supremacy. In 1533 he was chancellor of the exchequer; in 1535 vicar-general to enforce the carrying out of the Act of Supremacy (1534). To him were largely due 'the suppression of the monasteries' and confiscation of their property as a means of securing revenue, which earned him the title *malleus monachorum* (hammer of the monks). Lord privy seal, 1536; lord chamberlain, 1539; earl of Essex, 1540. His influence with the king at one time was very great, and he caused the downfall of men in the highest places, such as More, Fisher, Pole, and Courtenay. He crushed the Catholic revolt in the N. (Pilgrimage of Grace). C. was deservedly dreaded by and unpopular with both nobles and clergy. His fate was sealed partly by his agency in bringing about Henry's marriage with Anne of Cleves. Accused of treason, he was deserted by the king and executed. See M. Drayton, *Historie of the Life and Death of Lord Cromwell*, 1609; W. F. Hook, *Lives of the Archbishops of Canterbury*, vi., 1868; J. A. Froude, *History of England*, chapters vi. to xvii., 1882; R. B. Merriman, *Life and Letters of Thomas Cromwell*, 1902; van Dyke, *Renaissance Portraits*, 1905; and J. Lingard, *History of England*, iv. 8.

Cronin, Archibald Joseph (b. 1896), Scottish writer and doctor. Practised in London and Wales, as a medical inspector in the mines, providing him with a background for some of his novels, especially *The Citadel*. His chief works are *Hatter's Castle* (1931); *The Stars Look Down* (1935); *The Citadel* (1937); *The Keys of the Kingdom* (1942); *The Green Years* (1944); and *Shannon's Way* (1948).

Cronje, Piet Arnoldus (1835-1911), Boer general of Huguenot extraction. Was at one time member of the executive council of the Transvaal Republic and chief native commissioner. He led his men against the Brit. at Doornkop and Majuba Hill; was also responsible for forcing the garrison of Potchefstroom to capitulate, purposely suppressing the news of the armistice (1881). In 1895 he made the Jameson raid of no effect. On the announcement of the Transvaal war, he joined in the hostilities against the Brit., but was defeated in his attack on Kimberley. Gained a victory over Lord Methuen at the Modder R., and later at Magersfontein. Was forced to retreat before Gen. French in the siege of Kim-

berley. In spite of the efforts of the two Boer generals, De Wet and Botha, to come to his aid, he was forced to surrender with a force of 4000 men and six guns at Majuba. He was sent to St. Helena, but was allowed to return at the end of the Transvaal campaign. Was a large land-owner.

Cronstadt, in Russia, see **KRONSTADT**.

Cronus (called **Saturnus** by the Romans), identical with the Rom. god Saturn; C. according to the generally accepted version was the son of Uranus, one of the Titans, and of Ge, the earth. He married Rhea, by whom he had many children, among whom were Hera (Juno), Hades (Pluto), Poseidon (Neptune), and Zeus (Jupiter). He dispossessed his father of the throne of heaven, and was ousted from it in like manner by his own son Zeus.

Crook, George (1828-90), Amer. general; b. in Ohio. Made himself famous both in the Civil war and in his resistance to the attacks of the Indians in Idaho during the years 1866-72, and again eleven years later in Arizona.

Crook and Billy Row, par. in the co. of Durham, England near Bishop Auckland. Pop. 12,700.

Crooked Islands, two is. of the W. Indies, belonging to the Brit. group, Bahamas. They consist of Acklin, or Great Crooked Is., and Little Crooked Is. To the westward of Great Crooked Is. is Castle Is., upon which is a lighthouse, whose light is visible at a distance of about 18 m. Another lighthouse is situated on Bird's Rock, W. of Little Crooked Is. The Spaniards took possession of them, but they were restored to England in 1783. The pop. of 1300, mostly Negro, is engaged in cotton and banana production.

Crookes, Sir William (1832-1919), physicist and chemist; b. in London, eldest son of Joseph C., a tailor. He was first a student at the Royal College of Chem. under Hofmann; then made superintendent of the meteorological dept. of the Radcliffe Observatory, and gave lectures on chem. at the Science College. F.R.S. 1863; and vice-president of the Chemical Society, 1870. Obtained a prize of 3000 francs and a gold medal from the Fr. Académie des Sciences. An authority on all sanitary questions. Made many original discoveries in chem. and physics; viz. of the metal thallium (1861), and of the rare earth monium or victorinum. An expert in electricity; invented the radiometer and C.'s tubes. In addition to various technical works he wrote a standard treatise on *Select Methods in Chemical Analysis* (1871) and a small book on *Diamonds* (1909), a subject to which he had devoted some study during visits to S. Africa. Knighted in 1897, president of Brit. Association in 1898, O.M., 1910. Amongst the many contributions made by C. is his theory that all the elements have evolved from one primordial stuff, 'protyle.' His *Researches on the Phenomena of Spiritualism* (1874) contained matter that he never retracted, though it formed subject of regret with many colleagues who placed less trust in the good faith of

all humanity. See F. D'Albe, *Life of Sir William Crookes*, 1923.

Crookhaven, fishing vil. in the co. of Cork, Eire, 30 m. distant from Skibbereen. Pop. 150.

Crooks, Will (1852-1921), Eng. politician. One of the earliest of the Labour leaders, he became mayor of Poplar in 1903. Entered the House of Commons in the same year, and in 1916 was made a Privy Councillor.

Crookston, chief city in the co. of Polk, Minnesota, U.S.A.; situated on the Red Lake R., and some 150 m. distant from Winnipeg. Pop. 7100.

Crop, term used in speaking of certain dilatations of the alimentary canal of some animals. It is situated in an anterior position to the true stomach, and serves as a reservoir for food. In birds it is often called the *craw*, and is noticeable especially in predaceous and granivorous species; in the C. of the pigeon are two small accessory sacs. Insects also have these dilatations immediately preceding the proventriculus. In some, e.g. bees, the food can be disgorged from the C. for the benefit of the young.

Cropredy and Cropredy Bridge, par. in Oxfordshire, England, 4 m. distant from Banbury. C. Bridge is memorable for the victory gained by Charles I. over Waller, 1644. Pop. 400.

Crops. This general term for the agric. produce of the soil, the return of the farmer's labour, has been classified in many ways. Thus we speak of white C., that is of those plants such as wheat or barley and other grain which turn white as they ripen; of green C., those which are harvested green, such as clover, grasses, including also roots, potatoes, etc.; so too we have black C., especially used of beans and peas. A more convenient and more useful classification is now usually adopted, that of *cereal*, *leguminous*, and *root C.* The cereals include wheat, barley, oats, rye, maize; the leguminous clover, beans, peas, vetch, sainfoin, lucerne; the roots turnips, swedes, and mangels, and often also cabbage, kail, carrots, and potatoes. Further, there are special C. of importance to the world production of the soil, such as rice and its congeners, and the industrial cotton crop. Farmers in very early times knew that the planting of the same crop in the same ground, year in year out, exhausted the soil; thus it is that in primitive times we find the 'extensive' system prevailing in which, after a piece of land was exhausted, the farmer moved on and exhausted another. Sometimes we find primitive peoples moving as a community as the soil was exhausted—nomad agric. communities like the early Teutonic peoples mentioned by Tacitus and Caesar. Virgil's *Georgics* exhibits a knowledge of rotation of C., for he bids the farmer either lay his ground fallow every alternate year, or let the rotation of spelt or pulse, vetch, or lupine prevent the exhaustion of the soil; and he combines copious manuring with rotation. The more full development of crop rotation took place in England when the old

common-field system of farming by small tenants still prevented any but the large landowner from making use of the scientific rotation of which Lord Townshend was the pioneer. By the beginning of the nineteenth century rotation was nearly everywhere in force, and numerous systems, differing according to the nature of the soil, climate, altitude, and general situation, etc., were to be found. In countries such as Italy a very wide selection of following C. is made use of, and there a six or even eight years' system is found. In modern Brit. farming roots or leguminous C. alternate with the cereals. It must be remembered that cereals are exhaustive, for not only do

fact by farmers in times long past (see Pliny, *Natural History*, viii.); its reason was not known till the experiments of Hellriegel and Willfarth in Germany in 1888. Experiment had shown that a piece of land laid down for a long time in pasture and then sown for fifteen years with lupines contained thrice as much nitrogen as it contained before, which could only have come from the air. The test was made with leguminous plants in sterilised soil side by side with oats and barley. They were both obliged to be fed with nitrogenous manures. With a mixture of non-sterilised soil, the leguminous plants developed nodules at the roots and flourished without manure;



High Commissioner for Canada

CROPS AT INDIAN HEAD, NEAR CALGARY

they not accumulate the nitrogenous and mineral constituents of the soil, but they are not used on the farm, and all they have taken from the soil is sold off, while roots and clover, as feeding stuffs for stock, return these constituents as manures. The famous 'Norfolk' four-course system, roots, barley, clover, wheat, is typical of the rotation system. The root crop is also useful for allowing cleaning of the ground by hoeing between the rows. As to the exhaustion of the constituents of the soil, cereals take up more phosphoric acid than other C. except clover; and this therefore is lost to the soil, while it is retained by the roots consumed by the stock; potash is less taken up by cereals than by other C. and little therefore is wasted. These are the main losses of minerals by the growth of C., and must be replaced by mineral manures. The root C. take up far more nitrogen than the cereals, but not nearly so much as the leguminous C., which are the great consumers of nitrogenous material. It is this fact that makes a crop like red clover such a splendid preliminary for a cereal crop. This has been known as a practical

fact by farmers in times long past (see Pliny, *Natural History*, viii.); its reason was not known till the experiments of Hellriegel and Willfarth in Germany in 1888. Experiment had shown that a piece of land laid down for a long time in pasture and then sown for fifteen years with lupines contained thrice as much nitrogen as it contained before, which could only have come from the air. The test was made with leguminous plants in sterilised soil side by side with oats and barley. They were both obliged to be fed with nitrogenous manures. With a mixture of non-sterilised soil, the leguminous plants developed nodules at the roots and flourished without manure;

these nodules are found in all leguminous plants growing in natural, non-sterilised soils, and are caused by micro-organisms, *Bacteria radicicola*, which absorb nitrogen from the air through the nodule, break down, and in turn are absorbed by the plant. Cultivations of these bacteria are made and sprayed on the plants, and have an important effect in increasing agric. C. See also AGRICULTURE, CROPS; ROTATION OF CROPS. See L. Bailey (ed.), *Cyclopædia of Farm Crops*, 1922; H. G. Sanders, *An Outline of British Crop Husbandry*, 1939; W. Fream, *Elements of Agriculture*, 1941; and H. I. Moore, *Crops and Cropping*, 1946.

Croquet. Antiquarians have traced the descent of this game from Pell Mell or Pall Mall, Fr. *paille-malle*, which was fashionable at the end of the seventeenth century in London, and was played with hoops, a ball, and mallet, the object being to run a ball through the hoops and strike a peg in the fewest strokes. The game, much as it is played to-day, seems to have been first played in Ireland in 1852, and it became popular before 1860. As then played, there were ten hoops with a double

hoop or cage in the centre. In 1868 the All England C. Club was formed, and championship games were played at Wimbledon. For some years C. was played everywhere where a lawn was available, but it was a family or garden party game. Lawn tennis practically killed it, and a revival in a new form did not take place for some twenty years. In 1897 was formed the C. Association, the ruling body, with the centre of the game at Roehampton. The new C. is very scientific, and the utmost skill and care are exercised in the laying of lawns, in the selection of mallets, and the making of the balls.

The ground is a level grass lawn 35 yds. long by 28 yds. wide; 7 yds. from the centre of each base or shorter line are two pegs; there are six hoops of iron rods, $\frac{1}{2}$ to $\frac{3}{4}$ in. in diameter, 12 in. from the ground when fixed, $3\frac{1}{2}$ in. wide (for championship play, 1910, but 4-in. hoops are used). The hoops are placed thus (the unit of measurement from line 1, etc.): Nos. 1, 2, 3, and 4 are placed at the angles level with the pegs and 7 yds. distant from them and from the base and side lines; Nos. 5 and 6 are placed in the centre between the pegs, 7 yds. from each peg and from each other. The order of playing hoops is 1, 2, 3, 4, 5, 6, hit turning peg, then 2, 1, 4, 3, 6, 5, and winning peg. No. 5 is the 'rover' hoop. There are four balls, $3\frac{1}{2}$ in. diameter, and 15 oz. to 16 oz. in weight. Composition balls are now used for match play, but the older boxwood type are still common. Two, playing two balls each, or four, playing one ball each, are the number of players, blue and black against red and yellow, the order of play being blue, red, black, yellow. Each player has a metal clip, coloured as his ball, which must be placed on the hoop or peg next to be passed through or struck. The mallets must have wooden heads with straight faces exactly alike, the head usually weighing about $3\frac{1}{2}$ lb. The points of the game are scored by each ball passing the hoops and striking the pegs in order, and the winning player (or two players in partnership) is he who makes all possible points with both balls. The ground is marked with a white chalk band round base and side lines and a spot 3 ft. from the lines is placed at each angle. The start of each player is made from any point between the centre of the base line and the left corner and 3 ft. from the base line, which is behind the winning or last peg. Two terms used in the game need to be explained: roquet is to strike another ball with one's own; croquet is, after making a roquet, to take up the striking ball, place it against the ball struck wherever it may have rolled, and then play so that both the balls in contact are moved. If a player fails to make a point, i.e. to pass through a hoop or strike a peg (or both, in, of course, the proper order as stated above), or if he fails to roquet another ball, he loses his turn, and the next player in turn plays. If he succeeds in making a point, he has another stroke; if he roquets, he then takes roquet, plays the stroke or has another stroke after the

balls have been struck or croqueted. In the old game, the player could place his foot on his own ball, but this has disappeared in the new game. Also opponents' balls could be driven out of play; now no ball must be croqueted across the boundary line; if it is the player does not play his second stroke and loses his turn. The ball out of bounds is replaced 3 ft. from the line where it crossed.

With a true lawn and a knowledge of tactics the game can be as skilful in combination and in power of leaving balls for the next stroke or strokes as billiards. Special attention must be given to the various strokes made in making roquets. If the player wishes to take his second stroke at some distance he rushes the object ball, that is, strikes it so hard that it travels a considerable distance. A skilful player can, with his ball, cut the object ball so that it goes off at an angle; he may by striking his ball at the top make a follow through as in billiards. Wiring an opponent, i.e. leaving his ball so close to a hoop or peg that he has no free stroke at an object ball, is another test of skilled play. If, however, an opponent is wired so that no object ball is possibly available, he may lift his ball and go back to the starting point or baulk. The best way of holding the mallet and standing has been much discussed. A swing or pendulum stroke is from every point of view the best, and it may be made either by standing facing across the ball and swinging the mallet between the legs, or by standing with both feet in a line parallel with the ball and swinging the mallet with the right hand lower down and the left at the top; but the methods of grip are as various as those of golf. There is an elaborate system of handicapping for tournaments. In the U.S.A. the older form of C. has survived, but a special form, known as roque, extremely scientific, answers more to the scientific modern Eng. C. It is played not on grass, but on an artificially prepared ground which is 60 ft. by 30 ft., with four corners cut off 6 ft. in length, thus making a hexagonal court. There are ten hoops and two pegs which stand 12 in. and 18 in. out of the ground respectively. The most marked difference in the game is the rubber-faced board surrounding the ground against which a player may strike his ball and cause it to rebound into play, as off a billiard cushion; this stroke is called a carom. See the C. Association's *Laws of Croquet*, and periodical *Croquet Gazette*. There are many good books on the hist. and scientific methods of play by T. Mayne Reid (1863), J. D. Heath (1874, 1904), and H. C. Needham (1900). See also C. D. Locock, *Modern Croquet Tactics* (1920).

Crore (Hindu karor), Anglo-Indian word for 10,000,000 or 100 lakhs (usually) of rupees. It is also spelt kraur, courour, cauror, etc., and represented by Rs. 10,000,000 (or in official papers Rs. 1,000,000, one million tens-of-rupees). The value of a C. of rupees, now that the rupee is worth 1s. 6d., is about £750,000.

Crosby (married name, Van Alstyne), **Frances Jane** (1820-1915), Amer. hymn-writer; *b.* at Southeast, Putnam co., New York; daughter of John Crosby. Blinded in infancy; in 1835 entered New York Institution for the Blind; there graduated (1844) and taught (1847-58). Married, 1858, Alex. Van Alstyne, blind music teacher (*d.* 1902). Wrote hymns whose world-wide popularity is largely due to fortunate settings. 'Safe in the arms of Jesus' is best known; 'O hear my cry'—with its refrain 'Come, Great Deliverer'—is peculiarly haunting.

Crosby, Howard (1826-91), Amer. preacher, *b.* in New York; graduated at the univ. of New York city; was prof. of Gk. there in 1851, and at Rutgers College, New Brunswick, New Jersey, 1859. He was chancellor of the univ. of the city of New York, 1870-81, and in 1873 moderator of the Presbyterian church. He took a prominent part in politics and social reform. His son, **Ernest Howard Crosby** (1856-1907), a social reformer, was *b.* in New York city and graduated at its univ., 1878. He was president of the Social Reform Club of New York city and the New York Anti-Imperialist League. He pub. many works in the manner of Walt Whitman.

Crosby, two seaside pars., Great C. and Little C., of Southport, a rising seaside resort in the co. of Lancaster, England. Pop. 13,000.

Crosier, or **Crozler**, originally 'bearer of the crose', but in the fifteenth and sixteenth centuries both 'crose' and 'crose' began to be confounded as 'crose' (see *Murray's English Dictionary*). The C. was originally the bearer of the episcopal crook (*crociarius*); finally the crook itself was called C. It is now the pastoral, crook-headed staff, one of the insignia of the bishop, carried before both bishops and archbishops. Probably derived from the *lituus* of Rom. augurs. See O. Taylor, *Archæologia*, 52, 'On the Use of the Terms Crosier, Pastoral Staff, and Cross.'

Cross, Mary Ann, or Marian, see **ELIOT, GEORGE**.

Cross, Sir **Richard Assheton**, first Viscount (1823-1914), Eng. politician, *b.* near Preston, and in 1868 defeated Gladstone in S.W. Lanarkshire by 313 votes. Although of comparatively untried ability he was appointed by Disraeli in 1874 to the post of home secretary with a seat in the Cabinet. He was responsible for the following enactments; The Artisans Dwellings Act, 1875; the Factory and Workshops Act, 1878; the Criminal Law Amendment Bill, and the Housing of the Working Classes Bill, 1885.

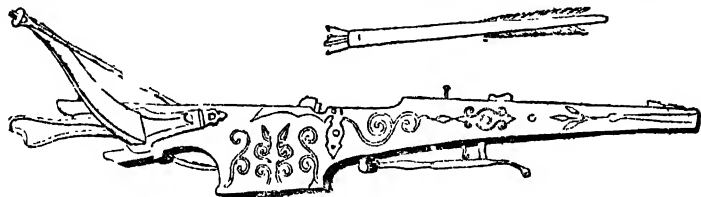
Cross, *riv.* which rises in the Cameroons in W. Africa. This riv. is navigable for three-quarters of its course and enters the bight of Biafra.

Cross (Lat. *crux*), intersection of two pieces of wood at right angles. In ant. times the C. was a very common means of punishment. As such it seems to have been Phœnician in its origin, though it was used by Indians, Persians, Medes, Gks., and Romans. The original form of crucifixion was by fastening or impaling the

victim on a stake, the *crux simplex*. But the various forms of the *crux compuncta* are better known. The *crux commissa*, known also as the Tau (from the Gk. capital T) and C. of St. Anthony (the name by which the Lat. C. was distinguished in the Middle Ages), consists of the upright with the C.-piece at the top. In the *crux immissa*, or Lat. C., part of the upright extends above the C.-piece. This is the form best known in the W., and the Gk. C., where the four arms are of equal length, may be considered a variant of it. The *Celtic C.* is then Lat. C. with a circle round the head. The *crux descussata*, saltire, or St. Andrew's C., so called because tradition relates that St. Andrew suffered martyrdom on a C. of this shape, is formed of two beams crossing each other obliquely. From these four varieties countless smaller types of C. have been evolved by Christian symbolism. Though so far we have only spoken of the C. as an instrument of death and disgrace, yet even before the time of Christ it was also in use as a religious emblem. By the ant. Egyptians the *crux ansata* was regarded as the symbol of life, and in Gaul it was a symbol of the sun. The Sp. conquerors of S. America were greatly astonished to find the symbol of the C. venerated in that country, where it was the sign of the god of rains. In the reign of Constantine, the sign of the C. in the form known as the *labarum* or XP, became the official standard of the empire. In 325 tradition tells us that St. Helena, the mother of Constantine, made a journey to Jerusalem to seek the true C. Her investigations resulted in the discovery of three Cs., and by the advice of Macarius, patriarch of Jerusalem, a sick woman was laid on them in turn, that the C. of Christ might be discovered. When laid on the third she regained her health, and the miracle was considered conclusive. Relics of the C. spread throughout the world, and the feast of the Invention or Finding of the C. is celebrated in the W. Church on May 3. The feast of the Exaltation of the C., celebrated E. and W. on Sept. 14, commemorates its recovery by Heraclius (A.D. 628) after capture by the Persians. The high veneration which was paid to relics of the C. during the early ages led to the great iconoclastic controversy. The iconoclasts wished to do away with such veneration, but the Church decreed that *latreia* (adoration) might indeed be paid to the wood of the C., though the worship is referred back to the person of the Crucified. In the medieval Eng. Church and the Rom. Catholic Church the worship of the C. takes place on Good Friday. During Passion-tide all the Cs. in the church have been veiled in violet, and on Good Friday the veils of the altar C. are removed at the singing of the anthem, 'Behold the wood of the cross on which hung the Saviour of the world.' It is then solemnly laid on the altar steps and kissed with great reverence by the sacred ministers. Another smaller C. is similarly venerated by the people. The early and deep hold which the veneration

of the C. took on the Eng. mind is shown by Cynewulf's wonderful poem, *The Dream of the Rood*. The sign of the C. was made in the early Church with the thumb on forehead or mouth. In the E. Church it is made with the first two fingers and the thumb, from forehead to breast, then to the right shoulder and then to the left. The general W. use is from left to right with open hand, though Lutherans use only the thumb. The placing of a C. or crucifix over the altars of churches is common to Rom. Catholics, Anglicans, and Lutherans alike; but many extreme Protestants refuse the use of the sacred sign as a mere superstition of human invention. *Processional Cs.* are those used to head eccles. processions, while *pectoral Cs.* are worn on the breast by bishops. In the case of metropolitans, an *archiepiscopal C.* takes the place of the bishop's crosier.

C. railway station in London being a modern copy. *Town or market Cs.* were generally erected in the market-places of tns. and vils. as pulpits whence sermons and addresses might be given. There are some excellent examples of these structures in England, in which country they were best developed. That of Cheddar in Somersetshire consists of an open vaulted structure with plenty of space where shelter may be taken from the rain. In the centre rises the base of the C. which surmounts the whole. The famous Paul's C. was erected by Henry III. in 1259. The many important sermons preached from it have made it an integral part of Brit. hist., but its exact form is unknown. It was demolished in 1643 as an offence to the Puritans. The present C., surmounted by a picture of St. Paul, was erected in 1911 as a memorial, and is also provided with a



CROSS-BOW AND QUARREL

The various kinds of Cs. in upright architecture must now be considered, for in the great art of Christian architecture, and throughout the whole range of medieval decorative art, the C. sign has been a most powerful influence, and Cs. exhibiting an infinite variety of form and proportion surmounted the loftiest architectural members of cathedrals and churches. The *sanctuary Cs.*, usually covered with exquisite sculptural design, marked the verge of a sanctuary. These and the *boundary or monumental Cs.* consist of an upright pillar or obelisk set in a heavy socket level with the ground. Sometimes they marked boundaries, but it is generally believed that most of them were erected to mark the grave of some king, bishop, or important hero. The oldest of these Cs. are connected with Scandinavian buildings and, from the fact of their bearing inscriptions in runes, are known as *runic Cs.* The Ruthwell C. is a good example of this kind. It is said that the is. of Iona once contained 300 monumental Cs., but only one, that of St. Martin, is now standing. The famous *Eleanor or Norman Cs.* are well known. They were erected in 1290 by Edward I. on his way to Westminster with the body of his wife Eleanor. At each place where the body rested for a night a memorial C. was erected. Ten or more, of which those at Geddington, Northampton, and Waltham are restored originals, were erected between 1291 and 1294. That at Charing was destroyed in the seventeenth century, the present C. in the courtyard of Charing

pulpit for giving addresses. The Scottish tn. Cs. early lost their religious character, and were used for the announcement of royal and civic proclamations. See G. de Mortillet, *Signe de la croix avant le Christianisme*, 1866; J. Stuart, *Sculptured Stones of Scotland*, 1867; E. Bunson, *Das Symbol des Kreuzes bei allen Nationen*, 1878; G. F. Browne, *The Ancient Cross Shafts at Newcastle and Ruthwell*, 1916; W. G. Collingwood, *Northumbrian Crosses of pre-Norman Age*, 1927; and R. Guénon, *Symbolisme de la croix*, 1931.

Crossbill, bird of the genus *Loria*, native of Europe, Asia, and N. America, chiefly in pine forests. The C. gains its name from its curious bill, in which the upper mandible crosses over the lower one at the point. This enables them easily to tear and break the scales of the pine cones on which they chiefly feed. The common red C. (*L. curvirostra*) is the best known, and occurs sometimes in Scotland. The plumage of the female is orange-green or grey-green. It only occurs in Britain as a migrant.

Cross-bow, or Arbalist, weapon used chiefly during the twelfth and thirteenth centuries, after which it gave place in England to the less cumbersome long-bow. It consisted of a bow, made of wood, iron, or steel, attached to a wooden stock, similar in shape to the butt of a musket. The bowstring was pulled back by a lever which in the smaller instruments was worked by hand or foot, and held in position by a notch. The bolt or 'quarrel,'

consisting of a short stout winged shaft with metal point, was laid in a groove at the top, and the string was released by a trigger. The larger Cs. may almost be considered as engines of war, so cumbersome were they. See Sir R. Payne-Gallwey, *The Crossbow*, 1903.

Cross-Country Running had its origin in school steeplechases held at Rugby, Shrewsbury, and Eton. In 1867 a C.-C. race was inaugurated by the Thames Rowing Club. Various clubs for C.-C. R. then came into being, and in 1876 the first national championship was held at Epping Forest. All the competitors lost their way. In 1929 the national championship was won by the Birchfield Harriers for the sixteenth time since 1877. An international championship was formed in 1902, and England were the first winners, Alfred Shrubbs being the Eng. champion. The C.-C. race was omitted from the Olympic games for 1928 as an unsuitable event for a summer programme. W. M. Cottrell (England) and Nurmi (Finland) are among the best C.-C. runners of recent years.

Crossen, see **KROSSEN**.

Cross-Examination, see **EVIDENCE**.

Crosshead. The C. in an engine is the block which, fixed at the end of the piston-rod, works between parallel guides, and so takes up the sideward thrust due to the obliquity of the connecting-rod, thus enabling the piston-rod to work in a straight line. It is generally made of cast iron, but is also of wrought iron or cast steel, and the slide bars between which it works are of wrought iron or steel with bearing surfaces of brass.

Crossley, Ada (1874-1929), famous Australian contralto; b. March 3, 1874, at Tarraville, Gippsland, Victoria; daughter of Edwards Wallis Crossley; mother related to poet Cowper. Educated at Port Albert, Gippsland; taught music by Alberto Zelman and Fanny Simonsen. In London, after four months under Sir Charles Santley, sang first at Queen's Hall, May 18, 1895. Married, 1905, Francis F. Muecke.

Crossley, Sir Francis (1817-72), b. at Halifax, Yorkshire, and became a celebrated Eng. manufacturer in the carpet trade. He accumulated an enormous fortune, which he dispensed very liberally on the Congregational Church and on various charities in connection with his own native city. His business success was obtained by the introduction of steam instead of manual labour and to the system of patenting new inventions. He was created a baronet 1863.

Crossmollina, tn. and par. in the maritime co. of Mayo, Ire., and situated in the barony of Tirawley. Pop. 4500.

Cross, Southern, see **SOUTHERN CROSS**.

Crossword Puzzles, offshoot or variant of the acrostic. The crossword puzzle consists of a diagram made up of numbered and blocked-in spaces, the numbered spaces ultimately to contain letters and the blocked-in spaces to show the beginning or termination of a word. When the letters are all filled in they help to form words arranged horizontally and

vertically. Clues to the words are given with the diagram, and may be either straightforward or deliberately ambiguous. The most usual diagram consists of a square of fifteen spaces each way, the blanks forming a symmetrical pattern, but oblongs and pictorial shapes are often used, and in some cases a thickened line takes the place of the blocked-in space. Crosswords of a childish sort were not unknown to the nursery magazines of the last century, but the vogue did not start until the early 1920's, when a New York publisher took hold of what at that time was a little noticed feature of a Sunday newspaper and brought out the first crossword puzzle book. Its success was remarkable. Crosswords began to appear in newspapers and magazines, and the Amer. public was captured. In England it then met with a general and enthusiastic welcome, and soon became almost as familiar in a paper as the title-page. The crossword puzzle has lasted a remarkably long time in England, practically all newspapers and many magazines supplying crosswords for their readers; the daily *Times* succumbed to them in 1930, after holding out for seven years. The majority of crosswords have simple solutions, but those in *The Times*, *Sunday Times*, *Observer*, *New Statesman and Nation*, *Spectator*, etc., give scope for research. Various periodicals have organised crossword competitions, usually with alternative solutions for many words, only chance directing the right choice of solutions. The *jeu de mots croisés* attained a certain popularity in France, and the *Morning Post* pub. sev. C. P. in Fr. for Eng. readers. *The Times* has issued sev. in Lat. C. P. have also been used with success for commercial advertising purposes.

Crotalus, genus of ophidian reptiles or pit-vipers, a sub-family of Viperidae. There are about eleven species, characterised by the presence of a rattle and the covering of small scales on the top of the head. All are to be found in America, and are known as rattle-snakes. *C. horridus*, a native of the U.S.A., is the common rattle-snake (q.v.). Two other familiar species are *C. terrificus* and *C. durissus*.

Crotch, William (1775-1847), musical composer, b. at Norwich. At the age of four he played the organ in London. In 1786 at the age of eleven he became assistant organist to Randall at Trinity and Kings Colleges, Cambridge. Three years later he wrote an oratorio *The Captivity of Judah*. After some time as a theology student at Oxford, he finally in 1790 turned again to music, and was appointed organist in Christ Church Cathedral. He took his Mus.D. in 1799, and in 1822 became first principal of the Royal Academy of Music in London. He wrote for the organ, piano, and voice, and was the author of a work *Elements of Musical Composition and Thorough Bass*.

Croton, large tropical genus of Euphorbiaceae, contains many species with important medical properties. *C. cascarilla* is a native of Santa Domingo

and Florida, and yields the cascarrilla bark. *C. Tiglium*, an inhab. of the Moluccas and Ceylon, is one of the most active and drastic of purgatives, woods, leaves, and fruit all containing the property. The seeds were formerly called grains of Tilly or Molucca grains, and the oil expressed from them is the powerful C. oil. The oil consists of a mixture of fatty acids and their glycerides, notably acetic, butyric, valeric, and methyl crotonic acids; the purging quality of the oil seems due to crotonic acid. A single drop administered internally acts as a drastic purgative; its action is too powerful for ordinary use, but it is employed with good effect in the case of unconscious or insane patients. *C. lacciferum* furnishes a very fine lac and a brilliant varnish. *C. sanguifluum* yields a deep red resinous substance resembling dragon's blood (*q.v.*); *C. balsamiferum* is aromatic and the liquor called eau de Mantes is distilled from it.

Croton, riv. of New York, U.S.A., and a trib. of the R. Hudson, into which it flows when about 35 m. distant from the city of New York. It helps to supply that city with water.

Crotona, or **Croton**, Gk. colony founded from Achaea (710 B.C.) in Calabria, Italy. It is the modern Cotrone on E. coast in the prov. of and 30 m. from the city of Catanzaro. By 510 B.C. it was strong enough to destroy its neighbour, Sybaris. It was famous in antiquity for the school of Pythagoras, a school of medicine, and as the bp. of Milo, the athlete. Later it lost its independence, and became part of the Rom. Empire. The present Cotrone has walls, a citadel, a cathedral, and a castle, and is about 6 m. from Cape Colonne. Liquorice root is grown. Pop. (com.) 11,600. See Smith's *Dictionary of Greek and Roman Geography*.

Crotophaga, sub-family of the family Cuculidae (cuckoos), peculiar to the New World, including sev. species. The chief member is the Ani, Black Parrot, or Savannah-bird, which extends from the S. States of N. America throughout most of S. America. Its plumage is glossy black, and its strange shape has also gained it the name of the Black Witch.

Crouch, riv. of Essex, England, flowing into the North Sea at Foulness. Burnham-on-C. is a favourite yachting centre. Length, 24 m.

Croup, spasmodic affection of the larynx in children, usually accompanied by the formation of a false membrane. The application of the term is now very uncertain, as many conditions formerly called C. have been identified with other diseases. The safest plan is to suspect diphtheria wherever the exudation of a false membrane is apparent. It is possible that bacilli, other than the diphtheria bacilli, may give rise to membranous growths, but all such cases must be regarded as doubtful, and recourse should be had to diphtheria antitoxin. A croupous condition may be due to catarrh of the larynx, when the treatment should aim at reducing the inflammation and removing any obstructive matter

causing difficulty in breathing. *Laryngismus stridulus* is a spasmodic affection of the larynx, threatening asphyxiation. The attacks are sudden in their onset and cease just as suddenly. The throat should be examined for adenoids, as they probably constitute the cause.

Crow, bird of the genus *Corvus*, of the family Corvidae. The family is distributed over almost the whole of the globe, though there are very few species in the E. part of Australia or in S. America. They include Cs., magpies, jays, and choughs, and may be subdivided into a large number of species. The colour of the true C. is black, generally a glossy black, often tinged with white at the edges of the feathers. But more distant members of the family are brownish: the jackdaw has grey at the back of the neck, and the hooded C. (*C. splendens*) is grey on the back and under parts. The choughs also vary from the common black in their red feet and red or yellow bills. The Corvidae have strong and generally straight bills with no notch in the upper mandible. The wings are long and pointed, except in the jays and magpies, where they are shorter. The tail is long and graduated, usually with twelve rectrices, of which the two middle ones are longer than the others. The C. is regarded by many naturalists as the highest family of birds. The intelligence of all of them is great in the extreme, and innumerable stories are told of their craft and cunning. Many of them vary their own disagreeable notes by imitating those of other birds. Among these the Amer. blue jays are the most noted. They may also be taught to imitate the human voice. Cs. are omnivorous, eating animal, fish, and vegetable foods indifferently. They show themselves very adaptable to circumstances, and devour almost anything edible.

Crowberry, or *Empetrum nigrum*, species and genus of Empetraceae which grows chiefly in the N. temperate zone and in the Andine Mts. The plant is an evergreen shrub with small crowded leaves, and the fruit is a black edible berry of a juicy nature, sometimes used in making wines. The fruit owes its name to its reputation for attracting crows, and in rookeries it is often used for decorative purposes.

Crowd, musical instrument. *see* CRUTH.
Crowe, Sir Eyre Alexander (1864-1925), civil servant in the Brit. Foreign Office, was b. at Leipzig; third son of Sir Joseph Archer C., consul-general there. His mother was a Ger., Fräulein Asta von Barby, of Gotha. Educated at Düsseldorf, Berlin, London, and Paris. Entered Foreign Office in 1885. In 1907 Brit. delegate at second Hague Conference. In 1911 awarded the K.C.M.G. for success in arbitrating, at The Hague, over recapture of an Indian agitator on Fr. soil. Assistant under-secretary for foreign affairs, 1912. Before the First World War he made a memorandum on foreign relations, which was useful when the war broke out. Attended Paris Peace Conference as minister plenipotentiary, and

from 1920 to 1925 was made permanent under-secretary.

Crowfoot, see **RANUNCULUS**.

Crow Indians, also called **Sioux**, or **Dacotahs**, tribe of N. Amer. Indians inhabiting the Dacotah ter.; more civilised than the other tribes.

Crowland, or **Croyland**, par. and tn. of England, situated in Lincolnshire on the R. Welland, 8½ m. N. of Peterborough. There are the ruins of an anct. abbey, which was built by Ethelbald in 716, and which has had a remarkable hist. The Danes destroyed it in 870, and in 948 it was rebuilt, after which it was twice burned and twice rebuilt. There is also an anct. bridge, built in the fourteenth century, upon which is a statue supposed to represent Alfred, or possibly Ethelbald. Ingulphus was abbot of C. from 1076 until 1109. Pop. 2700.



stamped on the back of the coin, and seated on his horse bearing the royal shield of arms. Queen Elizabeth appeared crowned in the later coins. The C. of Charles II.'s reign was covered with four shields typifying England, Scotland, Ireland, and France. At the present time the C. is worth five shillings in England. The C. of Denmark, Norway, and Sweden is very small in value and represents the sum of a little over one shilling.

Crown (Lat. *corona*), known from very anct. times as a headdress for kings, priests, or warriors. Cs. were used by the Egyptian kings, often very elaborate in style, but extremely simple at the time of the Ptolemies. In classical times the C. was usually a circular ornament of metal, in the form of a chaplet of leaves or flowers, worn on solemn and festive occasions. Among the Gks. it was an



CROWN OF CHARLES II.

Crowle, par. and tn. of Lincolnshire, England, situated in the Isle of Axholme, and extending into the W. Riding of Yorkshire. It is 5 m. E.S.E. of Thorne by rail. Pop. 3010.

Crowley, **Crole**, or **Croleus**, Robert (c. 1518-83), archdeacon of Hereford in 1559, and four years later prebendary of St. Paul's. Equally celebrated in the printing trade. He gave to us the first metrical version of the psalter in print and also brought out an admirable typographical ed. of the *Vision of Piers Plowman* in 1550.

Crowley, cap. of Acadia par., Louisiana, U.S.A. Centre of a rice-growing country. Pop. 9500.

Crown, name of various coins which represent different values in different countries. The origin of the word C. is to be found in the Fr. word *couronne*, the name of a gold coin issued by Philip of Valois in the early fourteenth century. Towards the close of the same century another Fr. king, Charles VI., issued a coin called the *écu de la couronne*. The C. did not appear in England until the reign of Henry VIII., and then it was a coin consisting of a mixture of gold and silver, the value of which represented five shillings. It was in the reign of Edward VI. that the image of the king appeared

emblem of office (as in the case of the archons), or frequently a reward for victors in the Hellenic games (Olympic, Isthmian, etc.). As a reward for exceptional services to the state it was a much-prized honour among the Romans. Among the various kinds were the 'corona obsidionalis' of grass or wild flowers, given to the general who rescued a besieged army; 'corona civica' of oak-leaves and acorns, given to the soldier who saved a fellow citizen's life in battle; 'corona navalis', a gold circlet ornamented with beaks of ships for the winner of a naval victory; 'corona muralis', similarly adorned with battlements, for the first who scaled the walls of a besieged city; 'corona vallaris', with palisades, for the first to break into the enemy's camp; 'corona triumphalis', awarded to the general who was granted a triumph. Among the emblematical Cs. were the 'corona sacerdotalis', worn by those engaged in sacrifice; 'corona funebris' or 'sepulchralis' for the dead; 'corona convivialis' of banqueters; 'corona nuptialis' or bridal C. In Germany, Norway, and medieval England the bridal wreath or C. was often of metal. As used in modern times for an emblem of sovereignty the C. was borrowed from the diadem (fillet of silk or wool) of oriental

origin. Alexander the Great adopted this from the Persian kings. Rom. emperors are represented with the diadem, laurel C., or radiating C. (symbolising the deification of the emperors). The diadem of Constantine the Great was replaced in the sixth century under Justinian by the 'stemma,' an elaborated golden fillet. Still more elaborate Cs. succeeded this in turn, until the present arched C. became the usual form. At the Norman Conquest a circle of pearls set in gold was the C. of Eng. kings. In the twelfth and thirteenth centuries this was heightened by strawberry leaves or trefoils. That of Henry IV. had strawberry leaves and fleurs-de-lis alternately, with sixteen small groups of pearls. Edward IV.'s was arched over with jewelled bands of gold closing under a mound ensigned by a cross patee, crosses patee replacing the strawberry leaves, and roses or fleurs-de-lis the pearl clusters. The imperial C. used from Charles II.'s reign to that of William IV. has four crosses patee and four fleurs-de-lis alternately, while two complete pearl-studded arches rising from the crosses have 1½ mound and cross at their intersection; George VI. wears this same C., known as 'St. Edward's.' The Queen's C. is the imperial C. made for Queen Victoria, 1838. It contains many ant. jewels, notably the lovely spinel ruby of the Black Prince, the sapphire from Edward the Confessor's ring, and the Stuart sapphire. (See Wickham Legg, *English Coronation Records*, 1901.) The pope's C. is a high unclasp mitre, with three circlets, decorated with ribbons, and surmounted by the ball and cross. The C. of the former Austrian emperors was cleft in the centre, but resembles the mitre in appearance. This style was adopted by Maximilian II. in 1570. A single arch surmounted by mound and cross rose from the left. The C. of Scotland, discovered in 1818 with other regalia in Edinburgh Castle, probably dates (with the exception of its arches) from the days of Robert Bruce. The iron C. of Lombardy, restored to the king of Italy, 1866, was a gold circle with a thin fillet of iron inside, said to have been hammered from a nail of the true cross, alleged to date from the time of Pope Gregory the Great (A.D. 590-604). The C. of the Ger. Empire had eight shields, the larger bearing the cross, the smaller the imperial eagle. There were four arches surmounted by mound and cross. Cs. are often seen in heraldic bearings or coats-of-arms. (See M. Holmes, *Crowns of England*, 1937; and M. Bowen, *Crowns and Sceptres*, 1937.)

In constitutional law and practice 'the C.' is a comprehensive symbolical expression denoting the members of the legal sovereignty in whom is vested the supreme executive power. The executive government of the Brit. Empire is carried on in the name of the C., and all its public acts are theoretically done by right of the royal prerogative. But all public acts of the C. are also done on the advice of the ministers of the C., with the result that the formerly personal prerogatives

of the king have become the privileges of the executive, which by the conventions of our unwritten constitution are in their turn a reflection of the privileges of the people. The C. as a term connoting the king and his ministers expresses the responsibility of the latter for every public act of the former, and the expressions 'descent of the C.' or 'succession of the C.' therefore mean the devolution of the paramount executive power from one monarch or titular head to his successor. The result of the constitutional limitations on the king's theoretical sovereignty is that the prerogative of the C., which Blackstone defines as 'a special pre-eminence which the king hath over and above all other persons, and out of the ordinary course of the common law in right of his royal dignity,' has become gradually narrowed in its content. The term prerogative, as indicating the ant. customary powers of the C. springing from the early character of the kingship as a tribal chieftaincy, and later the feudal overlordship, is in these days better regarded, in Prof. Dicey's words, as 'nothing else than the residue of discretionary or arbitrary authority which at any given time is legally left in the hands of the Crown.' It is a term which has caused much perplexity to the constitutional lawyer, but the various rights, privileges, and attributes composing the prerogative are clear. The common law prerogatives of the C. or the privileges of the executive comprise various legal attributes of sovereignty, privileges resulting from those attributes together with certain powers which may be said either to be inherent in any sovereign entity, or which are merely the survivals of more ant. times. The attribute of perfection of judgment expressed in the maxim that 'the king can do no wrong' puts the C. above the law, but results in the practice that ministers are liable for all royal acts, and that no administrative act can be done by the C. without the counter-signature of some responsible minister. The maxim is subject, however, to the curious interpretation that when the king makes an illegal grant or wrongfully confers a franchise, he has merely been 'deceived in his grant,' with the consequence that the grant can be upset as contrary to public justice. The C. has no dispensing power where public interests of vested rights are involved—a prohibition crystallised in the Bill of Rights, 1684—nor can the C. violate the common law. With such limitations as these it becomes clear that the maxim has lost its original force, and serves rather to demonstrate the transfer of legal liability to ministers rather than the moral perfection of the king's judgment. But the personal immunity of the sovereign from liability finds expression in the fact that no subject can sue the king in his own courts, but must proceed by way of petition or right presented through the home secretary, and referred by the latter to the attorney-general. An equally important attribute of the sovereign is his traditional perpetuity expressed in

the maxim that the king never dies. The C., indeed, is a corporation (q.v.) sole with perpetual succession. The common law terminated all appointments held 'during pleasure' on the demise of the C., but the statute of 1 Ed. VII., c. 5, by providing that such offices shall not be affected by a demise, brought the practice into accord with the maxim. Other prerogatives concerning the royal authority *per se* are that lapse of time cannot bar the right of the C. to sue or prosecute; the subordination of the right of the subject when it conflicts with that of the king; the immunity of the king from any statutory obligation unless bound by express language or by necessary implication; and the privileges flowing from the theory that the king is never a minor.

But there are numerous limitations on these prerogatives also, e.g. the right of the C. to claim real property as against the adverse possession of the subject is barred after fifty years; succession duty cannot be claimed by the C. after twelve years from the date of the death giving rise to the succession, or where the Inland Revenue authorities have 'slept on the C. rights'; and indictments for treason, other than cases of attempted assassination of the king, cannot be preferred after three years from the committal of the crime. Again, royal minorities are always provided for by statute, and it is generally conceded that the king is bound, whether named expressly or by necessary implication or not, by, *inter alia*, statutes for the preservation of public rights, statutes for the public good, or for the suppression of public wrongs. Other prerogative powers include the right to receive and send ambas. from and to foreign countries; the power to make treaties, leagues, and alliances with foreign nations; the power of issuing letters of marque and reprisal where not abrogated by treaty; the power of declaring war and making peace; and the power of granting safe conducts to alien enemies. But there is considerable doubt whether the C. can cede land to a foreign state during time of peace, or interfere with the position of the subject without Parliament's sanction, and the House of Commons can stop supplies for the payment of a war declared by the C. The prerogative of the C. to assent to and dissent from Bills sent up for the royal assent is now reduced to a shadowy veto which has never been exercised since the reign of Anne. As the fountain of justice the king can create common law courts for the empire beyond the seas and pardon offenders (*see also* CRIMINAL LAW), as *parens patriæ* he has the nominal custody of all infants and lunatics, as the arbiter of commerce can erect markets and coin money, and as the fountain of honour confer titles of nobility. The royal prerogative touching revenue matters confers on the C. the ownership of waifs, strays, treasure trove, wrecks, and the personal estate of intestates dying without next of kin, and enables the C. to levy customs, excise, stamp and death duties, and income tax. As the orthodox head of the Established Church,

the C. appoints, on the recommendation of the Prime Minister, archbishops, bishops, and other dignitaries of the Church, and entertains appeals from eccles. courts through the judicial committee of the Privy Council. (For the Councils of the Crown, *see* CABINET.) *See* L. G. W. Legge, *English Coronation Records*, 1901; and G. J. Youngusband and C. Davenport, *The Crown Jewels of England*, 1919.

Crown, in architecture, term applied either to C. tower or to the top portion of a cornice, or again to the spire formed by two converging buttresses as in St. Nicholas' Abbey, Newcastle.

Crown Agents for Colonies. These are home government officials whose functions relate to the commercial interests of the crown colonies (q.v.). Their duties are of a semi-administrative character, and appertain to such matters as the regulation of ports and docks, and shipping contracts. There are at present (1949) two C. A., assisted by a secretary and a large staff comprising consulting engineers, naval architects, analysts, assayers, and accountants. Among the colonies for which they act as agents are Bahamas, Barbados, Brit. Guiana, Brit. Honduras, Ceylon, Gambia, Gibraltar, Gold Coast, Hong Kong, Jamaica, Malay States, Malta, Newfoundland, N. Nigeria, Sierra Leone, Somaliland, Straits Settlement, Trinidad, Wei-hai-wei, and the Windward Is. They act as agents also for the W. Africa Frontier Force, the King's African Rifles, the Uganda Railway, the gov. of Zanzibar, and the Tanjong Pagar Dock Board. C. A. are to be distinguished from the agents-general of the self-governing colonies, whose duties are also of a commercial nature, in that these latter are truly colonial representatives. The offices of the C. A. are at Whitehall Gardens, S.W.1.

Crown Cases Reserved, Court for. Before the institution in 1907 of the court of criminal appeal the C. for C. C. R., consisting of the judges of the high court, or five of them at least, of whom the lord chief justice had to be one, was the tribunal to which was reserved any question of law that might have arisen in a criminal trial, whether at the central criminal court (q.v.), the assizes, or quarter sessions. Unlike the court of criminal appeal, which replaced the C. for C. C. R., the latter court could not hear appeals on questions of fact, or mixed law and fact.

Crown Colony, colony under the C. C. form of gov. The phrase C. C. Gov. is used with various meanings. In the broadest, and perhaps the most correct, sense it is applied to all the colonies in which the Crown retains the real control of the executive (e.g. to all the W. Indian colonies prior to recent changes). By both official and common usage, however, it is often narrowed so as to exclude colonies with elected assemblies though without a responsible executive. Sometimes it is applied in a still narrower sense only to those colonies which have no elected, as opposed to nominated, members at all in their legislatures.

Some writers divide the genus C. C. into two species, pure, where the whole legislature is nominated, and semi-representative, where part of it is chosen by election. In any case the official majority is the characteristic institution of C. C. Gov., and the effect of this official majority is that the legislative council is really an advisory body. The term C. C. was not in general use until the 1840's. It was the antithesis to the old colonial system of representative gov., and in its earliest use the term meant those conquered or ceded colonies in which the Crown retained, consciously, full authority by way of circumventing the principle laid down in *Mansfield's* historic judgment in *Campbell v. Hall* (1774). That judgment was to the effect that by the grant of representative institutions to any particular colony the Crown, unless its powers were expressly reserved, forever precluded itself from the exercise of further legislative power over that colony, and from the power of amending its local legislation; so that henceforward these powers could be exercised only by the colonial legislature or by Act of the Imperial Parliament. It was to provide for the gov. of Senegambia and of Quebec that the C. C. in its modern sense came into operation, the old representative system being impracticable or unsuitable by reason of the fact that in the one was an African pop. incapable of assimilating itself to that system, and in the other an alien Fr. pop. Lord Lugard stated that the C. C. form of gov., adopted in all Brit. dependencies in Africa, was evolved for the control of small is., or of small trading depots on the mainland coasts. Its chief features, he said, are a highly centralised secretariat, controlling all depts.; the colonial secretary, and not the governor, is often the real executive officer, and he acts for the governor when the latter is absent from the seat of gov. or from the colony. Lord Lugard considered that the legislative council was necessarily largely absorbed in the interests of the commercial community, and inevitably out of touch with the machinery of distant native administrations, and little competent to deal with legislation affecting them. The system, in his opinion, was at that time ill adapted for the gov. of large countries (see his *Representative Forms of Government and Indirect Rule in British Africa*, 1929). Another instructive early instance of a C. C. is that of Trinidad which, when taken by Abercromby, was largely inhabited by Sp. people, who could hardly be expected to reconcile themselves to the abrogation of Sp. law or institutions. Later, however, the term C. C. became used for other colonies, whether conquered or settled colonies. In the latter category, if the colony was settled by Brit. immigrants, these were generally supposed to take Eng. law and institutions with them (see *COLONIAL LAW*). Later, however, the term C. C. came to include a class of settled colony, under the authority of the Crown, in its pre-representative stage, e.g. New S. Wales in its early settlement period. It also came to embrace settled

colonies in the tropics in which representative gov. was impossible, e.g. Sierra Leone; and the W. Indian colonies upon their abandonment of the old representative system, e.g. Jamaica by its own initiative in 1866 after the Negro insurrections and the general upheaval following emancipation; the conquered tropical African colonies of the late nineteenth century, and the class of colonial protectorates (q.v.). By this time the criterion of the C. C., which originally sprang from the classic distinction between conquered and settled colonies, now came to be founded on the distinction between self-governing colonies and non-self-governing colonies. In most cases the Crown not only retains the right of veto on local legislation, but the power to legislate directly by order in council. See M. Wight, *The Legislative Council*, 1946.

It is an article of faith in Brit. colonial policy to-day that every endeavour should be made to accelerate progress towards self-government in the colonies. Considerable progress is being made in the essential work of social and economic reconstruction and, although political development is governed by social and economic progress, this latter progress is apt to obscure the work of liberalising colonial political institutions that is going on all the time. New constitutions have been introduced in a number of colonies, and some major constitutional reforms have been inaugurated. Indeed, there are very few colonies where there have not been constitutional changes of one kind or another, notably during the year following the close of the Second World War. Among the most notable constitutional changes are those in Ceylon, Jamaica, and Nigeria (see under those heads), all of which illustrate the policy of promoting the growth of responsible self-government and the estab. of political institutions based on popular control. So far-reaching are the changes in some cases that the term C. C. as applied to the particular dependencies is a misnomer; e.g. the reforms in Ceylon adopted from the recommendations of the Soulbury Commission mean nothing less than the introduction of a parl. system with Cabinet responsibility based on the Brit. model, and a general approximation to dominion status. The changes made in Brit. Malaya—the constituent states of which are really protectorates under treaty arrangements—are also designed, through the new Malayan union, to lay the foundations for ultimate self-government. The field for political advancement is, necessarily, greatest in Africa, for in that continent is concentrated the largest area of our colonial empire and the largest number of our colonial peoples. In the Gold Coast an unofficial majority is now elected to the legislative council, and in Nigeria a new constitution has been approved which secures a measure of genuine political unity, whilst allowing for the diversity of the peoples and the varying forms of traditional government. In E. and Central Africa there has been

an increase in the direct representation of Africans on the legislative councils of Kenya, Uganda, Tanganyika, and Zanzibar. In Nyasaland an African council has been set up for the whole protectorate, with delegates drawn from the prov. councils; and a similar central council has been created in N. Rhodesia. When these councils have been securely estab. it is intended that members from them should be selected to sit on the legislative councils—so that throughout Africa constitutional developments are proceeding alongside the great extension of responsibility and interest by Africans in local government and in native administrative services. It would seem that in the W. Indies political advancement is likely to be made through some form of federation, especially as the majority of the is. are in favour of the principle. See also COLONY and COLONIAL TRUSTESHIP. See H. E. Egerton, *A Short History of British Colonial Policy, 1606-1909* (9th ed.), revised by A. P. Newton, 1932, and *British Colonial Policy in the XXth Century*, 1922; H. H. Wrong, *Government of the West Indies*, 1923; Sir A. Bertram, *The Colonial Service*, 1930; E. Jonks, *The Government of the British Empire*, 1937; *The British Empire: a report on its structure and problems*, issued by the Royal Institute of International Affairs, 1937; Margery Perham, *Native Administration in Nigeria*, 1937; R. Emerson, *Malaysia: a study in direct and indirect rule*, 1937; H. L. Hall, *The Colonial Office: a History*, 1937; Sir C. J. Jeffries, *The Colonial Empire and its Civil Service*, 1938; Lord Hailey, *An African Survey*, 1938; Sir D. Cameron, *My Tanganyika Service and some Nigeria*, 1938; E. Barker, *Ideas and Ideals of the British Empire*, 1941; and E. Walker, *Colonies*, 1944. See also under the individual colonies.

Crown Debts, those debts which are due to the Crown, e.g. fines, penalties, and which are contradistinguished from debts due to the subject principally by reason of the priority they enjoy in the administration of the estate of a deceased person who has *d. insolvent*. The old common law allowed the Crown (*q.v.*) to recover C. D. summarily by a writ of *extent* against the debtor's land and goods, and to follow that property into the hands of whomsoever it went. Apparently the Crown still has this power, but it cannot take copyholds in execution. The Crown's lien on the debtor's property as against a *bona fide* purchaser for value of the debtor's property only extends to specialty debts (i.e. created by deed), and debts of record (judgment debts, recognizances, and others, see DEBT); it does not extend to a simple contract debt. Rates and taxes, so far as they can be said to be C. D., are preferential debts in the administration of the estate of a bankrupt, but otherwise C. D. have no priority over other debts when an estate is administered in bankruptcy. In the administration of the estate of a deceased person, debts due to the Crown by record or under a bond or covenant are paid first,

where the estate is solvent, but simple contract debts due to the Crown merely enjoy priority over all other kinds of simple contract debts. Where the estate is insolvent C. D. enjoy a like priority where the estate is administered by the legal personal representative or by the chancery div.; but where it is administered by the court of bankruptcy, C. D. are, it seems, payable *pari passu* with other debts due under judgments, specialties, and simple contract. In winding-up proceedings of a company, C. D. are allowed. C. D. stand in the same position as in the bankruptcy of an individual.

Crown Lands, lands enjoyed in right of the Crown, the profits from which form part of the ordinary revenue of the Crown, or revenue which the Crown has had from time immemorial. Since 1760, when George III. surrendered these revenues for a fixed sum or civil list, they have been collected on the public account. At the time of the surrender the gross revenues amounted to about £89,000, and the net return to about £11,000. In the year ended March 31, 1938, the total receipts were £2,030,888, of which amount £151,103 was from the mines. At the present day C. L. comprise no great extent of property, most of them having been granted away to private subjects. Other C. L. are lands formed by alluvial deposit, lands left bare by the sea, and royal mines. The Crown title to foreshore or land between high and low water-mark, and lands covered by inlets of the sea or navigable rivers, is limited by the public rights of navigation and fishing, and rights incidental thereto. C. L. are exempt from taxation in the absence of express or implied words to the contrary in the Acts imposing the different burdens. The offices of the commissioners of C. L. are at 55 Whitehall.

Crown Office, dept. of the central office of the supreme court of judicature. Its official head is the clerk of the Crown in the king's bench (*q.v.*), now generally entitled the king's coroner and attorney and master of the C. O. The work of this office relates to the administrative business on the Crown side of the king's bench div., and also of the divisional courts of that div. It has no concern with proceedings on the revenue side of the court, nor in regard to parl. and municipal elections petition, or bankruptcy matters. The duties of the king's coroner, which are very numerous, are *inter alia* to issue informations in the nature of *quo warranto* for misdemeanours in agreement to the order of the court; to attend at the sittings of the divisional courts, so as to inform the judges on questions of practice and procedure, and take minutes of the proceedings; to administer the oath of allegiance to judges or magistrates on their appointment; and to keep in safe custody the records of the C. O. pending removal to the record office (see CUSTODIA ROTULORUM). The judicial business of the Crown side of the king's bench is transacted either in court or before the judges or the master of the C. O. in chambers.

The ministerial business as conducted in the C. O. includes a great number of matters, including, especially, the issuing of writs of *habeas corpus*, prohibitive attachment, *mandamus certiorari*, and writs of subpoena.

Crown Point, tn. in Essex co., in New York, U.S.A., and 36 m. distant from Burlington. It is situated on Lake Champlain, so called after the Fr. coloniser, Champlain, and the remains of a Brit. fort captured by the Amers. in 1775. Iron and ore deposits in the neighbourhood. Pop. 1660.

Crown Solicitor, see SOLICITOR TO THE TREASURY.

Crowne, John (c. 1640-1703), Eng. dramatist, b. in Nova Scotia. He began a literary career in England with his romance *Pandion and Amphigenia* (1665), one of the few Eng. heroic romances after the manner of Scudéry. Though of no very striking talent as a dramatist, he found favour at Charles II.'s court, and his plays were successful, some being acted in the eighteenth century. Dryden considered C. his rival. Among his plays are *The Country Wit* (1675); *The Destruction of Jerusalem* by Titus Vespasian (two parts, produced in 1677); *Trojanus* (1681); *City Politiques* (performed in 1683); *Sir Courtly Nice: or, It Cannot Be* (1685); *The Married Beau: or, The Curious Impertinent* (1694); *Caligula* (1698). His dramatic works were pub. with a memoir, by J. Maidment and W. H. Logan (1873-1877), and a bibliography by G. P. Winship (1922). See T. Cibber, *Lives of the Poets*, 1753; A. F. White, *John Crowne, His Life and Dramatic Works*, 1922.

Crowquill, Alfred, see FORRESTER, A. H. Crow Steps, see CORRIE STEPS.

Crowther, Samuel Adjai (1809-91), missionary bishop of Africa, b. in Yoruba and sold as a slave in 1821. Was rescued with his comrades in 1822, and sent to Sierra Leone. The Church Missionary Society took an interest in him; he became a convert to Christianity and came over to England to the Church Missionary College at Islington. He was ordained by Bishop Blomfield, and on returning to his own country he trans. the Bible and Prayer Book into Yoruba and other dialects. Was created bishop of the Niger ters. in 1864, and d. in 1891 after a life of strenuous labour and great piety.

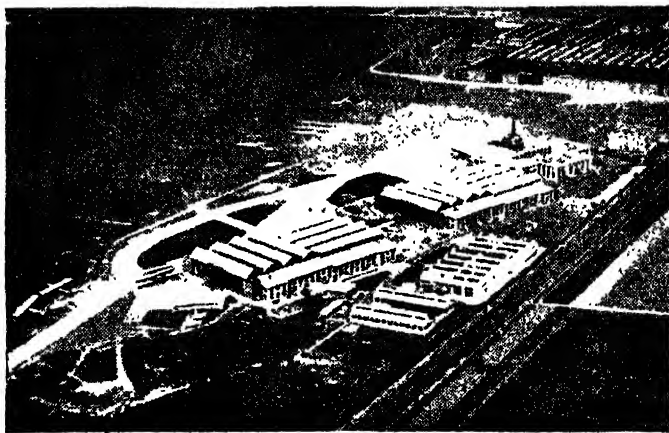
Croydon (Doomsday Crotindene; formerly Craydene, chalk hill), parli. municipal, and co. bor. of Surrey, England, 10 m. from London, in the diocese of Canterbury. The par. of C. is 36 m. in circumference. C. sends two members to Parliament. It owes its growth and popularity to general trade, attractive residential quarters, and proximity to London. The par. church dates back originally to about A.D. 962, was rebuilt probably by Archbishop Courtenay (d. 1396), and again after the fire of 1867 (see below). The archiepiscopal palace, now used by the Kilburn sisters as a girls' school, was the residence of the primates until 1757 (see below). The Whitgift Hospital was founded in Elizabeth's reign.

Archbishop Whitgift's endowment also endows the grammar and middle schools. Others were endowed by Archbishop Tension, 1714. Adult education is provided at the C. Polytechnic and the C. School of Art. The prin. assembly hall is the civic hall, formerly the hall of the N. End Brotherhood. It has accommodation for 1050 people. Before its acquisition it was badly damaged in air raids, an oil bomb having brought down half the roof. It was restored as far as war conditions allowed. There is a fine tn. hall, a theatre, public libraries, and barracks. There are breweries, a number of light engineering and other factories, and a clock and bell foundry. The world's largest carillon of seventy-two bells for the Riverside Church, New York, was cast at this latter factory. The airport covers 400 ac. and cost £267,000. Extensions of the C. General Hospital costing £80,000 were opened in 1927. The Warringham Park Mental Hospital has accommodation for 960 patients, and gives all forms of modern treatment. The C. crematorium was opened in 1937, with a chapel built in Gothic style with vaulted roof. In 1896 the central library was opened in Katharine Street which, as part of the architectural pile of the tn. hall, possesses premises as imposing as those of any public library in the S. of England. The library was one of the earliest to adopt the 'open access' system (see LIBRARIES). The branch library in Brigstock Road, Thornton Heath, was opened in 1914. In 1926 provision was made for numerous other branch libraries, but the Second World War arrested completion of the scheme. The large electricity undertaking suffered considerable damage in 1940, when a 500-kilo bomb hit the power station, and in 1944 a flying bomb exploded in the engine room; but by 1947 practically the whole of the damage had been made good. The new electricity offices and showrooms at Walsley Road were occupied in 1941. There are numerous parks and recreation grounds and open spaces covering a total area of 1380 ac. Addington Hills is a natural park of 130 ac., consisting of a plateau of 460 ft. altitude with heather and fir-trees. Other parks are New Addington (94 ac.), Beaulieu Heights (21½ ac.), Ashburton Park (12 ac.), Selsdon Wood (200 ac.), Grange Wood (on Norwood Hills), a 30-ac. park on a commanding site; and Norwood Grove (32½ ac.), noted for its trees, flowers, and birds.

From the evidence of relics which are preserved in the tn. hall C. seems to have been the very centre of the S.E. Saxon settlement. The Noviomagus of the Romans was the Wallington of a later day, in the hundred of which C. was legally included. Legend has it that the original par. church was founded by the Christian soldiers of Julius Plautius, but this is not verifiable; when the thirteenth-century church was built portions of an early Saxon church were discovered. An early document by which Archbishop Aethelred exchanges C. land with Duke Aelfred is the first extant reference to the age-old

connection of the archbishops of Canterbury with C. The Domesday Survey shows that (c. 1085) the manor of C. (later known as the archbishops' palace and to-day as the old palace) was in the lordship of Archbishop Lanfranc, and that there were a church and some 200 inhab. From the time of Lanfranc the archbishops occupied this manor as their summer residence. The archbishops gave C. its first fair (1273) and first market (1276), their purpose being, it is said, to supply the needs of the pilgrims passing through C. to the shrine of St. Thomas at Canterbury. Among famous guests at the manor were James I. of Scotland, the prisoner-guest of Archbishop Arundel,

Liverpool in the early nineteenth century. In 1809 this house became the military seminary of the E. India Company, where, among others, Lord Napier of Magdala, Lawrence of Lucknow, and Lord Roberts of Kandahar received their training. At the beginning of the nineteenth century the pop. of C. was 6000. With the opening of the London to C. railway for traffic the pop. was increased to 16,000. This enhanced the difficulties of local government, and C. was the first tn. to adopt the Public Health Act, and to constitute a local board of health. Among the chairmen of the board were Cuthbert Johnson, who, in his spare time, compiled an extensive MS. hist. of C.



CROYDON AIRPORT

in 1412; Catherine of Aragon, who after her divorce sought refuge there; Mary Tudor; and Elizabeth Tudor, who made sev. visits to C., the first in 1573 as the guest of Archbishop Parker. Whitgift, the most intimate name in the record of the archbishops at the palace, founded the hospital of the Holy Trinity, known as the Whitgift Hospital, in 1596, for the use of the aged poor of Lambeth and C. The archbishops withdrew from the palace in 1757; in 1808 they bought Addington Palace, which became their outside London residence until 1896. Grindal, Whitgift, and many other archbishops are buried in the par. church or at St. Mary, Addington. The eccles. par. of C. still remains in the diocese of Canterbury, and the bishop of C. is one of the suffragans of the archbishop who is bishop of the diocese. One of C.'s most famous citizens was Lord Howard of Effingham, who lived and d. at Haling House, the site of which is now occupied by Whitgift School. Addiscombe House, later called Addiscombe Place, built by the son-in-law of John Evelyn, was the home of Lord

(to be seen in the C. reference library), and Wm. Drummond. Among its most noted officers was Baldwin Latham, the engineer who not only built the water tower at Park Hill, but designed water-works at Vienna and elsewhere in Europe. C. was a pioneer in air transport, with the building of the aerodrome at Waddon. Blériot landed there after his channel flights; Lindbergh landed there from Paris after his solo crossing of the Atlantic. Until the Second World War C. was the airport of London, and not, as to-day, one of the airports of the metropolis reserved for charter aircraft. The first bombs that fell in the London area in 1940 fell upon C., some months before the continuous attack on C. and London began. In the flying-bomb period it was the most bombed tn. in England, and suffered great devastation, from which it has not yet fully recovered. The death-roll was, however, low owing to evacuation and good shelter accommodation.

It is on official record that Queen Mary II. in council actually approved a charter as a bor. to C. (May 21, 1691), but that,

owing to the default of the secretary of state (probably the second earl of Nottingham) or for some now undiscoverable reason, the charter was never received or made operative. C. had to wait 200 years before, in the year 1883, the charter of incorporation was granted by Queen Victoria. In 1889 C. was granted the powers and duties of a co. bor., with control of its own highways, education, and public health services. The tn. now has its own bor. courts and quarter sessions. The pop. in 1931 was 233,155, and in 1947 (estimated) 244,000.

Croydon, formerly a suburb of Sydney, New S. Wales, now included in Ashfield (pop. 45,000) and Burwood (pop. 20,000).

Crozat Islands, group of volcanic is. situated in the S. Indian Ocean at almost equal distances from each other between the Cape of Good Hope and Kerguelen Is. The names of the prin. is. are Possession, East, and Penguin. Sixteen is. are uninhabited. The C. I. are a Fr. dependency of Réunion, and have an area of 200 sq. m.

Crozier, Francis Rawdon Moira (c. 1795–1848), naval officer, b. in Ireland. He made three voyages with Capt. Parry to the Arctic Circle in 1821–27, went to the Antarctic Ocean with Capt. Ross in the *Terror* in 1839–43, and sailed as second officer in Franklin's last expedition in 1845 to discover the N.W. Passage, dying in the Polar regions. The party was not heard of till Capt. McClintock found a record (signed, April 1848, by Capt. C.) on King William's Is. in 1859, stating that the explorers were about to start for Great Fish R. under C.'s command. See Sir F. L. McClintock, *Fate of Sir J. Franklin*, 1859.

Crozier, John Beattie (1849–1921), Brit. historian and philosophical writer, b. of Scottish parents in Ontario. Among his works are *The Religion of the Future* (1880) and *Civilisation and Progress* (1885, trans. into Jap., 1903). A civil-list pension was granted him in 1894, and doubled later to enable him to carry out his studies. Other pubs. are *Lord Randolph Churchill: a Study of English Democracy* (1887); *History of Intellectual Development on the Lines of Modern Evolution* (1897–1901); *My Inner Life* (1898); *The Wheel of Wealth* (1906); *Sociology applied to Practical Politics* (1911); and *Last Words on Great Issues* (1917).

Crozier, see **CROSIER**.

Crozon, seaport of France, in Finistère, on Douarnenez Bay, 10 m. from Brest, with sardine fisheries. Pop. 7700.

Cruclian Carp, or *Carassius vulgaris*, fresh-water fish of Europe and Asia, closely allied to the goldfish. It is a member of the Cyprinidae, or carp family, and differs from the carp chiefly in having no barbel. It sometimes bears the name of Prussian carp.

Cruciferae, very extensive natural order of Dicotyledons, containing between one and two thousand herbs or shrubs dispersed over the milder parts of the world. A large proportion consists of inconspicuous and useless weeds, but many are cultivated either for their beauty or for their useful properties. Honey is secreted

in nectaries at the base of the outer stamens, and self-fertilisation is of regular occurrence. The order comprehends such useful plants as the mustard, cress, turnip, cabbage, radish, scurvy-grass, and horse-radish. Of the genera *Brassica*, *Cheiranthus*, and *Nasturtium* are among the most important.

Crucifix (Lat. *cruci fixus*, fastened to the cross), literally 'the Crucified One,' a cross with the effigy of Christ fastened to it. The C. began to replace the plain cross in churches in the reign of Constantine (d. A.D. 337). The Gk. Church did not acknowledge them, and they were not commonly used in the E. till the close of the eighth century. They were general in the Lat. Church in the Carolingian period. They form a prominent feature in Rom. Catholic churches. The earliest representations presented Christ as alive and clothed, with open eyes, the figure being pierced by four nails. The symbolic sacrificial lamb often figured on the cross, with a medallion bust of Christ, as in the Vatican cross. Later Christ appears as dead, naked except for a loincloth, fastened by three nails. In Catholic churches the prin. C. stands in the centre of the high altar. They are generally of gold or silver, but are sometimes made of wood or stone, and smaller ones of ivory. Many great artists and sculptors have carved Cs. Sometimes a pictorial and not a plastic representation appeared on the cross.

Cruden, Alexander (1701–70), Eng. scholar, author of a famous Bible concordance. He was educated at Marischal College, Aberdeen, and then for a time confined for symptoms of insanity, finally coming to London (c. 1722) as tutor and bookseller. He became bookseller to the queen, 1735. His *Complete Concordance to the Holy Scriptures of the Old and New Testament* (including a concordance to the Apocrypha) appeared in 1737. Later he acted as a corrector for the press, and called himself 'Alexander the Corrector' of national morals. His *Scripture Dictionary* was pub. in 1770.

Cruden, par. and coast tn. of Aberdeenshire, Scotland, 8 m. from Peterhead. A battle between Malcolm II. of Scotland and Canute (later king of England) is supposed to have been fought here. Pop. 3000.

Cruelty to Animals, see **ANIMALS**, **CRUELTY TO**.

Cruelty to Children, **NATIONAL SOCIETY for the Prevention of**, see **NATIONAL**.

Cruikshank, George (1792–1878), caricaturist and artist, was the son of Isaac C. (c. 1756–c. 1811) and the younger brother of Robert C. (1739–1856), both of whom also achieved success as caricaturists. George C. had no training in art, though he once made an abortive attempt to enter the academy schools, but he was a born artist and began to sketch as a child. Some of his drawings at the age of seven have been exhibited. In 1811 he began to contribute to the scurrilous periodical *The Scourge*, and within a few years he was on the staff of other papers, and had begun to illustrate books.

He issued many cartoons after the style of Gillray, and the subject of a considerable number issued in 1814 and 1815 was, naturally enough, Napoleon. In the latter year he became associated with Wm. Hone, the author and bookseller, and his illustrations to Hone's lampoons on George IV. and the managers of the queen's trial, such as 'The Queen's Matrimonial Ladder,' 'Non mi ricordo,' and 'The Man in the Moon' attracted much attention. These squibs against George IV. were reissued as *Facetiae and Miscellanies* (1827). In 1818 he issued the first of his pictorial sermons, the famous 'Bank Restriction Note,' through which he claimed with

his output enormous. He contributed largely to the *Comic Almanac* (1835-53), the forerunner of *Punch*. Among the popular books of the period illustrated by C. are Grimm's *German Popular Stories*, 1823-26 (containing possibly his best work), and *Fairy Tales* (1827); Scott's *Waverley Novels*; *Memoirs of Grimaldi* (1838), *Don Quixote* (1833); *Points of Humour* (2 vols.) (1823-24); *Bentley's Miscellany* (containing his illustrations of Ainsworth's *Jack Sheppard*). *The Table Book* and *The Omnibus* were magazines of his own. His last known work, a frontispiece to Mrs. Blewitt's *The Rose and the Lily*, was done when he was eighty-



CRUIKSHANK'S CONCEPTION OF ST. VALENTINE'S DAY
Comic Almanac.

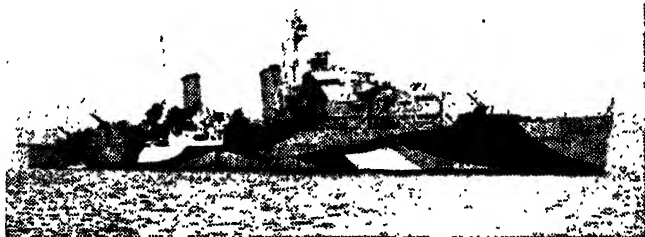
some reason to have caused the death penalty for forgery to be abolished. Subsequently he issued a series of eight plates, 'The Bottle' (1847), and an oil-painting, 'The Worship of Bacchus' (1862), in which he preached temperance and showed the downward path of the drunkard. Of these, perhaps, he was more proud than of any others of his work. Other temperance prints were 'The Gin Bottle,' 'The Gin Trap,' 'The Gin Juggernaut,' 'The Drunkard's Children,' and 'Sunday in London.' His other oil-paintings include 'Titania and Bottom,' 'Cinderella' (1854, now in S. Kensington Museum, London), 'The Fairy Ring,' 'Grimaldi Shaving,' and 'Disturbing the Congregation.' In later years he devoted himself largely to the illustration of books, and in this direction he was particularly successful with Dickens (*Oliver Twist* and *Sketches by Boz*), Ainsworth (*The Tower of London*, and six other books), Thackeray (*The Legend of the Rhine*), Fielding, Smollett, and Sterne. His industry was prodigious and

three. Three years later he d., and was buried at Kensal Green, but shortly after his remains were removed and interred at St. Paul's. In caricature (*q.v.*) he carried on the work of Rowlandson and Gillray, but without their ferocity and coarseness; in humorous drawing he stood alone, and as an illustrator he has not been excelled. He was at his best, in this last branch of art, in depicting the grotesque and terrible. See W. B. Jerrold, *The Life of George Cruikshank*, 1883; W. M. Thackeray, *An Essay on the Genius of George Cruikshank*, 1884; A. M. Cohn, *George Cruikshank: a Catalogue Raisonné*, 1924; and R. McLean, *George Cruikshank*, 1948.

Cruiser (Dutch *kruisen*, to cross), war vessel primarily built for speed. It existed as early as the sixteenth century and was used for scouting, convoying, and carrying dispatches. At first it was a pinnacle of small dimensions, but the operations against the pirates in the seventeenth century caused a bigger class of vessel to be built, provided with oars

as well as sails and carrying heavier armament. By the middle of the eighteenth century it had developed into the frigate of 700 tons carrying twenty-eight or thirty-two guns, and was improved during the naval wars with France until it reached some 1500 tons. The introduction of iron shipbuilding greatly affected the C., as it enabled speed to be developed parallel with strength of armament. The development was, however, slow. At first there was the corvette (*q.v.* for the modern vessel), with small steaming capacity but high sailing qualities. This was followed by unprotected Cs. in which the steaming capacity was greatly improved. Upon these came the protected C. to which class belonged the *Edgar*, launched in 1893, having a displacement of 7350 tons and a

Renown (32,000 tons with 15-in. guns) were also battle Cs. In the First World War there was always need for a swift vessel carrying heavy armament, such craft being highly suitable for attacking warships of substantial magnitude, while at the same time being able to make wide enveloping movements for the purpose of operating in the rear of a hostile fleet or threatening its retreat. These were essential functions of the battle C., and an excellent opportunity for the exercise of the battle C.'s powers was afforded in the battle of the Falkland Is. (*q.v.*), where two Brit. battle Cs. destroyed Adm. von Spee's Ger. squadron. At the battle of Jutland, however, Brit. and Ger. battle Cs. fought each other, and their powers of speed were not used in any exceptional manner. The terms of the



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H.M.S. 'SCYLLA,' CRUISER OF THE 'DIDO' CLASS, 5450 tons

speed of 19 knots. This was followed in 1895 by the *Powerful* type (displacement 14,200 tons, speed 22 knots). Later on came the class of armoured Cs. of the *Cressy* type, launched in 1901, which was followed by the *Monmouth* type in 1903; the *Devonshire* type in 1905; and the *Minotaur* in 1908. The *Minotaur* had a displacement of 14,600 tons, a speed of 23 knots, and carried four guns of 9·2 in., and ten of 7·5 in. The armoured C. was greatly favoured at the beginning of the present century to the prejudice of the battleship, but a reversal of opinion subsequently took place, and later naval opinion favoured the building of bigger battleships of the Dreadnought and super-Dreadnought types. This movement also led to the introduction of a new class known as the battle C., whose armament is only slightly inferior to that of the strongest battleships. To this class belonged ships of the type of the *Invincible*, launched in 1909 (displacement 17,250 tons, speed 27 knots), and the *Queen Mary* (displacement 27,600 tons, speed 28 knots), with eight guns of 13·5 in. calibre. The *Hood* (42,100 tons with 15-in. guns), which was sunk in the Second World War (see 'HOOD,' THE), and

Washington Treaty (*q.v.* of 1921, however, practically sealed the doom of this type of vessel. The Washington Treaty had for a time a very important influence on the design of all types of war vessels, and in the case of Cs. a limit of 10,000 tons displacement, with guns up to a maximum of 8 in., was fixed. Now generally the term C. (as distinct from Amer. battle Cs. or 'large cruisers') refers (since the Washington limitations) to a light C. of not more than 10,000 tons displacement. Cs. are built for speed, their function being to convoy merchant vessels and transports, and to pursue enemy armed ships and merchant ships, and for police duty on Commonwealth trade routes. The R.N. generally names them after Brit. cos., towns, dominions, and colonies. Three Brit. Cs. of the *Leander* class, completed in 1934, were intended to become the standard type for large vessels, but subsequent international events made it necessary to increase the displacement. In 1938 the R.N. had thirteen 'Washington' and forty-four other modern Cs. The Gov's defence plans, as expressed in the White Paper of March 3, 1936, provided for increasing the total number of Cs. to seventy, of which sixty would be

under age and ten over age. In the naval programme for 1939 it was proposed, *inter alia*, to build four large 6-in. Cs. At present the Brit. Navy has (1948) forty-three Cs. Those of the *Tiger* and *Swiftsure* classes (completed 1944-46) are of 8000 tons displacement, have nine 6-in. guns and ten 4-in. anti-aircraft guns, and a speed of 31 knots. Other leading classes are the *Fiji* class, (1940-45) all named after colonies; they are of 8000 tons, have twelve 6-in. guns and eight 4-in. anti-aircraft guns; the *Dido* class (1939-1941), 5450 tons, ten 5.25-in. guns and eight 4-in. anti-aircraft guns; the *Black Prince* class (also 1940-45), same armament as the *Dido* class. All the last three classes have a speed of 33 knots. Then there is the *Southampton* class, named after the big cities. They were completed in 1938-39 and vary from 9100 to 10,000 tons and have twelve 6-in. guns and eight 4-in. anti-aircraft guns (*Belfast* has twelve); *London* class, named after Eng. cos., were completed in 1929, have a displacement of 9850 tons or slightly less, carry eight 8-in. guns and a similar number of 4-in. guns. The *Kent* class, also named after cos., are a year older, are mostly of 10,000 tons and have much the same armament as the *London* class. Among other classes are the *Carlisle*, two of which class, *Capetown* and *Colombo*, completed 1922 and 1919, are listed to-day as anti-aircraft ships. They are 4200-ton ships and carry eight 4-in. and two 3-in. guns and five 6-in. and two 3-in. guns respectively. The Royal Australian Navy has three Cs., the Royal New Zealand Navy and the Royal Canadian Navy two each.

The U.S.A. has (1947, built or building) three battle Cs. ('large Cs.'). *Alaska*, *Guam*, and *Hawaii*, each of 27,000 tons, with nine 12-in. guns and twelve 5-in. guns (1941-48); twenty-five heavy Cs. between 9324 and 17,000 tons; and forty-one light Cs. between 6000 and 14,700 tons, thirty being of 10,000 tons. The Fr. Navy has nine Cs. ranging between 5886 and 10,000 tons and that of the U.S.S.R. eleven in service. See G. Holman, *The King's Cruisers*, 1948, and *Jane's Fighting Ships*.

Crusades, or Wars of the Cross (Fr. *croisade*). The objects of these religious wars carried on by European nations against Mohammedanism for sev. centuries were originally (1) to ensure the safety of pilgrims visiting the Holy Sepulchre, and (2) to set up Christian rule in Palestine. Later on we find the attack directed against Egypt and even Constantinople, and in the fourteenth century the conquests of the Ottoman Turks turned crusading into a defensive movement. It is usual to speak of the C. as six or seven in number, but actually the movement was continuous for over two centuries, hardly a decade passing without one or more expeditions. Only the most successful or the most disastrous of these, however, have taken prominent place in hist. In the eleventh century affairs stood thus: The mild rule of the early Saracens had for centuries allowed a

Christian protectorate, first estab. under Charlemagne, to exist in Jerusalem, and many monarchs, including our own Alfred, sent offerings to the holy places. But this was ended in 1010 by the fanatical caliph, Hakim, who destroyed the sanctuary. The protectorate passed in 1021 to the Gk. Church, and in 1071 the Saracens were themselves overcome by a rougher tribe, the Seljukian Turks. Christian pilgrimage became difficult and dangerous, and in 1095 the appeals of Pope Urban II., seconded by the preaching of Peter the Hermit, led to the undertaking of an enterprise which in various forms had already been proposed by more than one pontiff. The turbulent warriors of Europe received a new impulse. Instead of being restrained by the Church with peaceful admonitions, as in the institution of the Truce of God, their warlike ardour was encouraged, organised, and dedicated to what was proclaimed to be the highest and holiest service. The *Deus vult* of Clermont found its echo in the hearts alike of princes and commoners. In 1095 sev. undisciplined hosts, including those of Walter the Penniless and Peter the Hermit, set out for the E. but perished on the way. In 1096-97 a great army under Godfrey de Bouillon, Bohemund of Otranto, and other leaders, concentrating on Constantinople, fought its way through Asia Minor, taking Antioch in 1098, and Jerusalem in 1099. A Christian kingdom was estab., with Godfrey as its first head, his brother Baldwin as prince of Edessa (Upper Mesopotamia), and Bohemund ruling at Antioch. Godfrey d. in 1100 and was succeeded by Baldwin; Bohemund was captured by the enemy, and a great Fr. expedition sent for the relief of Antioch was almost entirely destroyed. During the next half-century, in spite of reinforcements, including fleets from Genoa, Norway, and Venice, the Christians in Syria were hard-pressed. To assist in the defence of Jerusalem were formed the orders of Hospitalers of St. John, and Knights Templars, afterwards so widely renowned. In 1144 Edessa was lost, and the second crusade, under Louis VII. of France and Conrad III. of Germany, ended disastrously, and its failure for a time discouraged European effort, while the Moslem pressure increased on all sides.

In 1184-85 the monarchy of the city of Jerusalem was offered to the kings of France and England in turn, to induce them to come to the rescue, but nothing was done in either country, beyond the levying of a special yearly tax (which is said to have been the precursor of our modern system of taxation). Two years later the great Saladin, sultan of Egypt, who had long been maturing his plans, having captured Damascus in 1174 and Aleppo in 1183, now swept down through Galilee with an immense force, defeated the Christians at Tiberias and Hattin, and took Jerusalem, Oct. 1187. The news was received in Europe with consternation and rage. Fresh C. were set on foot, of which the most important was that led

by Philip of France, Frederick of Germany, and Richard I. of England. The Germans went through Asia Minor, losing their emperor on the way by drowning; the French and English journeyed by sea to Acre, which had already been besieged nearly two years by Guy de Lusignan. Richard distinguished himself in the capture of the city, but quarrelled with his allies, who left him to carry on the war alone. After a year of brilliant but useless exploits, he made a truce with Saladin, and returned to Europe. Another crusade, starting from Venice in 1202, became involved in Venetian and Byzantine intrigues, and instead of reaching Jerusalem assisted the deposed Isaac Angelus to regain the Greek throne; a few months later Constantinople was stormed by the Crusaders, and a Latin empire established under Baldwin of Flanders, 1204. In 1212 occurred the strangest and most pathetic events in the history of the holy wars. A 'children's crusade,' was started by a French boy named Etienne, near Vendôme, who, announcing that he had a divine mission, was joined as he went southward by 30,000 other children. They embarked at Marseilles; two of their vessels foundered near Sardinia, the rest reached Alexandria, where the children were seized and sold as slaves, few of them ever regaining their liberty. At about the same time another boy named Nicholas, in Germany, led a similar expedition into Italy, but this did not end so miserably. Some died by the way, but many returned home, and others found service in Italy and elsewhere. The fact of parents allowing their children to take part in such enterprises shows, perhaps, more plainly than anything else, the ignorant credulity and fanaticism of those days. A crusade under Andrew of Hungary and others (1217-21) against the Moslem power in Egypt was a failure, but that of Frederick II., undertaken in 1228 while he was under the ban of the pope, was successful. By diplomacy, not fighting, he regained Jerusalem and the Holy Land of Palestine, which remained in Christian hands until 1244, when it was finally lost. The seventh crusade, led by Louis IX. of France (St. Louis), in 1248, was like that of 1217 directed against Egypt, and proved even more disastrous. Louis, with the greater part of his army, was captured, and had to pay 800,000 pieces of gold as a ransom. Even after this, in 1270, he headed another crusade, but died at Tunis. Among those who joined this expedition was Prince Edward of England (afterwards Edward I.), who a few months later led his own followers to Acre, but achieved no results. He was the last royal crusader, except Peter of Cyprus, who in 1365-67 carried on a holy war in Egypt and Syria, but was assassinated. Though later on several popes preached united war against the infidels, nothing came of it. Even when Constantinople was captured by Mohammed II. in 1453 Pius II. failed in trying to raise a crusade for its recovery. The Templars were suppressed, but the Hospitallers, at Rhodes and afterwards Malta, long

continued to be a bulwark against Turkish advance in the Mediterranean.

Though the Crusades failed in effecting the objects for which they were intended, they indirectly worked great and unforeseen benefits for Christendom. While princely adventurers and their turbulent followers left Europe to seek for fame and conquest in the East, astute monarchs were establishing the reign of law in the West. The Church, by preaching a theocratic movement which was unsuccessful, injured its own prestige, and, what is more, by the increased knowledge and breadth of view introduced by intercourse with another and in some respects a higher civilisation, a perceptible advance was made in Europe towards that freedom of thought which led in after years to the revolt against papal authority. The Templars themselves were accused of latitudinarianism and heresy. Trade was greatly stimulated; the merchants and mariners of the Mediterranean, especially of Venice and Genoa, found the demand for the shipping increased manifold, for the transport of armies and the bringing of new and rare commodities from the East. European craftsmen and soldiers learned valuable lessons from Saracen skill in art and in war. Sugar, cotton, and many other articles now of everyday use first became known in Europe through the Crusades. During the twelfth and thirteenth centuries rumours of a mysterious Christian potentate in Central Asia, Prester John, led to the sending of various missions, first in search of him as a possible ally and afterwards to attempt the conversion of the Mongols. Prester John was not found, nor the Mongols converted, but the missionary journeys of Carpini in 1245, and Rubruquis in 1252, and the trading journeys of Nicolo Polo and his son Marco, gave European geographers their first real knowledge of central Asia. Up to that time the wildest legends, such as those of Sir John Mandeville, had passed as truth. The bibliography of the Crusades, both as to contemporary records and modern compilations, is very extensive. See F. Gibbon, *The Decline and Fall of the Roman Empire*, 1776-88; T. Archer and C. H. Kingsford, *The Crusades*, 1894; S. Lane-Poole, *Saladin and the Fall of the Kingdom of Jerusalem*, 1898; Villehardouin and De Joinville, *Memoirs of the Crusades* (Everyman's Library), 1908; E. Barker, *The Crusades*, 1923; C. Erdmann, *Die Entstehung des Kreuzzuges*, 1935; H. Belloc, *The Crusade*, 1937; P. Rousset, *Les Origines et les caractères de la première croisade*, 1946; and Sir W. Scott's novel, *The Talisman*, 1825.

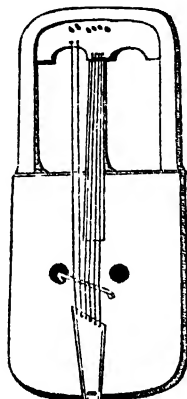
Crusca, Accademia della, one of the most famous of the many Italian academies, founded at Florence, 1532, and still in existence. 'Crusca' means the bran which remains after the bolting of flour. The Accademia della Crusca or Furfuratum aimed at purifying and cultivating Italian language and literature. Its arms were a bolter with the motto 'Il più bel fior ne coglie.' Its vocabulary of the Italian tongue (1st ed. 1612) is still a model

for works of the kind. The Fr. Academy was modelled on this one. Eng. residents in Florence who pub. inferior sentimental poetry and prose about 1785 were nicknamed the Della Cruscan school. In England many of their productions appeared in the *World* and the *Oracle*. Popular for a time, their work received its deathblow from the criticisms of Gifford, in his *Bariad* and *Mæviad*, 1851. The Della Cruscans included Topham, Mrs. Piozzi, and James Boswell.

Crusius, Otto (1857-1918), Ger. classical philologist, b. at Hanover. He studied in Leipzig, becoming prof. at Tübingen Univ. in 1886, at Heidelberg in 1898, and Munich in 1903. In 1888 he became ed. of the *Philologus*. He produced *Analecta ad Paræmigraphos Græcos*, 1883; an ed. of *Plutarchus de proverbii Alexandrinorum*, 1889-94; *Zur handschriftlichen Überlieferung der Paræmigraphen*, 1891. Other works are *Beiträge zur griechischen Mythologie und Religionsgeschichte*, 1886; *Untersuchungen zu Herondas*, 1892; *Die Delphischen Hymnen*, 1894; a fourth ed. of the *Anthologia Lyrica* of Bergk and Hiller; and a biography of Erwin Rohde, 1902.

Crustacea (Lat. *crusta*, crust, referring to the incrustation of the external skeleton with lime in the larger species), large and greatly varied class of animals, classed with insects, spiders, and myriapods (centipedes and millipedes) in the phylum Arthropoda. The astonishing variety in common characteristics will be recognised when it is seen that the group includes crabs, crayfish, lobsters, barnacles, acorn-shells, water-fleas, wood-lice, pill-bugs, sand-fleas, and shrimps, and is composed of both terrestrial and aquatic animals, the latter being either marine or fresh-water species. The features which are shared by all are few, and in degraded form some of the chief characteristics are lost. Nearly all breathe by means of gills, the head has five pairs of appendages (namely two pairs of antennae and three pairs of jaws), the thorax bears numerous appendages which are usually biramous, and the segmented abdomen also frequently has limbs. Reproduction is sexual, the sexes being nearly always distinct, and all crustaceans are oviparous; the female carries her eggs with her under the abdomen or thorax until they hatch, when a series of extraordinary metamorphoses generally take place. The distribution of C. is very wide. They frequent the sea at all depths, occur in fresh-water lakes and rivers, and a few dwell under the bark of trees; the extinct species date from the Cambrian period. They function as scavengers of the sea, are used as bait for fish, and by some people crabs, lobsters, prawns, shrimps, and crayfish are regarded as food. About 6000 species, fossil and recent, have been classified, the grouping being based upon the character and number of the segments and appendages. The Trilobita were formerly classed with the Entomostraca, but are now generally considered as distinct arthropods, and the two sub-

classes are known as the Entomostraca and Malacostraca. The Entomostraca contains four orders of small aquatic animals: (1) Branchiopoda (g.v.) or Phyllopoda, e.g. the brine-shrimps and water-fleas; (2) Ostracoda, e.g. the genus *Cypris*; (3) Copepoda, e.g. Cyclops and fish-lice; (4) Cirripedia (barnacles), e.g. the barnacle-geese and acorn-shell. The Malacostraca contains sev. orders of which the chief are the Decapoda, e.g. the crab and lobster; Amphipoda, e.g. the sand-hopper; Isopoda, e.g. the wood-lice; Stomatopoda, e.g. *Squilla*; Cumacea, e.g. *Cuma*.



CRUTCH

Crutched, or **Trinity Friars**, order of friars who came to England from the Continent in 1244, called *Frères crucifères*, or *croisiers*, from the staff, bearing a cross on the top, which they carried in their hands. This name was in England corrupted into 'Crouched,' or 'Crutched' F., and is still preserved in Crutched-friars, Mark Lane, E.C. They belonged to the Trinitarians who followed the Augustinian rule. Later they had a scarlet cross on their habits changed to a blue cross in 1460 by Pope Pius II. They had monasteries in London (between Jewry Street, Aldgate, and Mark Lane), Oxford, and Reigate, and also in Scotland and Ireland at the Reformation. They were suppressed in the Brit. Isles in 1536.

Cruz, see **SOUTHERN CROSS**.

Cruyshaute, see **KRUISHOUTEM**.

Cruz, St. Juan de la (1542-91), Sp. mystic and poet, b. at Fontiveras, in Old Castile. His family name was Juan de Yepes y Alvarez, that of de la C. being assumed on his becoming a Carmelite friar in 1563. He aided St. Theresa in her reformation of the Carmelite Order. He wrote both in prose and in verse, marked by fervour of style and harmonious beauty of language. His works include *Noche oscura del Alma*, and have frequently been trans. into other tongues. His *Collected Works* was first pub. in 1580, and trans. into Fr. by

Maillard in 1694. *Obras Espirituales* (Seville, 1703, 12th ed.) was reprinted in 1849, forming vol. xvii. of the *Biblioteca de Autores Españoles*. De la C. was canonised in 1726. See D. Lewis, *Complete Works of St. John of the Cross*, 1889, and life, 1897; E. Allison Peers, *St. John of the Cross*, 1932. There is a superb life by Father Bruno (1938), containing a striking description of his escape from prison in Toledo.

Crwth, or Crowd, obsolete lyre-shaped musical instrument with six strings, four being played with a bow and two plucked by the thumb. It is very auct. in origin, probably the oldest stringed instrument played with the bow, mentioned about A.D. 609 by Venantius Fortunatus, bishop of Poitiers, in some elegiacs as 'chrotta.' The C. trithant had only three strings. Bow instruments probably came originally from India, but the C. was apparently the first of the viol family in Europe. It was an especial favourite in Wales, and was heard there as late as 1801. In England, Ireland, and Brittany it was also much played. The sound-holes were circular, the bridge slanted to the right, the *nut* fast passing through the sound-hole and resting on the back of the instrument, thus doing the work of a sound-post. The C. is frequently mentioned in T. Watts-Dunton's romance *Aylwin*, 1898.

Crying Bird, see COURLAN.

Cryolite, mineral with a shimmering pearly lustre, found in abundance on the W. coast of Greenland. It is composed mainly of the fluorides of aluminium and sodium ($6\text{NaF} \cdot \text{Al}_2\text{F}_6$). It was largely employed in the production of aluminium, but its most important use is in the production of alum and soda bicarbonate.

Cryophorus, apparatus invented by Wollaston to demonstrate the loss of heat due to evaporation. The instrument consists of a bent glass tube provided with a bulb at each end; it is prepared by introducing a small quantity of water, which is boiled until the tube and bulbs contain only water and water vapour, when the apparatus is hermetically closed.

Crypt (Gk. κρυπτός hidden), subterranean, vaulted structure under a church (especially directly beneath the choir or chancel), used for sepulture, or (rarely) as a chapel. Anciently it was a subterranean chapel in the catacombs. Cs., when large enough for an altar and having room to worship the relics, grew out of the confessions or underground tombs designed to receive the bodies of saints, martyrs, and church dignitaries. Cs. were most usual between the ninth and thirteenth centuries, but were not common after the early Romanesque or Norman period. One of the finest examples is that of the cathedral at Glasgow. In England there are good examples under Canterbury Cathedral (1096), St. Paul's, London, and the cathedrals of Winchester, Worcester, Hereford, and Gloucester. Others are under Chartres Cathedral; cathedral of Otranto; St. Mark's, Venice; St. Eutrope, Saintes; St. Peter's, Rome.

Cryptogamia (Gk. κρυπτός, hidden, γάμος, marriage), name given to the twenty-fourth class of the Linnean system of plants. It is used to distinguish the plants which do not possess perianth, stamens, pistil, or any floral parts like the *Phanerogamia*. They are mostly reproduced by spores. The C. consists of three groups, the Thallophyta, e.g. seaweeds and fungi; the Bryophyta, or mosses and liverworts; the Pteridophyta, e.g. ferns and selaginellas.



THE CRYPT, CANTERBURY CATHEDRAL

Cryptography (from Gk. κρυπτός, hidden, secret, and γραφειν, to write), or writing in cipher, the art of writing messages in such a way that they can be read only by those possessing the key to the cipher. Plutarch tells of a system in use among the Spartan generals, known as the *scytale*, from the staff (σκυτάλη) used to write and to decipher the messages. The writer wrapped a long strip of parchment round his staff, so that the edges touched all the way round. The message was then written along the joined edges, so that each letter was written half on one side of it and half on the other. The parchment strip was then unrolled, and sent to its destination. It could only be read by rolling it on a similar staff to that used by the sender, so that the letters again became whole. Julius Caesar also made use of a simple cipher, by which the fourth letter of the alphabet stood for the first, the fifth for the second, and so on. A cipher formed by reversing the order of the alphabet was in use among the Jews, as we learn from Jeremiah xvi. Francis Bacon, Lord Verulam, in *The Advancement of Learning* (1605), classes C. as a part of grammar, and gives three

requisites for a good cipher. It must be easy to write and read; it must be difficult of detection; it must be void of suspicion, i.e. it must not appear to be a secret message at all. He himself furnished an ingenious bi-literal cipher, by which the letters of the alphabet were represented by various combinations of the letters A and B in groups of five, three As and two Bs or three Bs and two As. Before this time, however, some literature had already gathered round the art. The first writer on the subject was John Trithemius, abbot of Sponheim. At the request of the duke of Bavaria, he composed *Polygraphia* (1500). The same prelate may also be the author of *Stenographia*, pub. some fifty years later at Lyons. During the period of the Civil wars in England, most of the important messages from the leaders of both parties were sent in cipher. The Royalist party especially made free use of this means. King Charles I. and his queen were especially adept at the art, and a large number of their letters and papers remained untranslated until the nineteenth century.

The various different methods of C. fall mostly under the following heads: (1) Writing with invisible ink which becomes visible when the paper is heated; (2) the insertion of superfluous words and letters, where it is agreed upon that words at regular intervals form the message, the rest being padding; (3) the misplacing or rearrangement of words or letters; (4) reading vertically or diagonally; (5) the substitution of letters; (6) by stencil plates or papers which are placed over the cryptogram, the words which then appear forming the message; (7) the use of two or more letters (Bacon's system); (8) the employment of numerals instead of letters, a system often used by Charles I.; (9) by a special key containing an arbitrary code; (10) the use of specially arranged counterpart tabulations, which vary at different stages in the message. A description of Hogg's secret code will give some idea of a cipher of this latter class. It consists of two columns, one fixed and containing the letters of the alphabet, another sliding by the side of the first column and containing two alphabets, one continuing below the other. A key word is arranged on by the correspondents, and this word is repeated again and again until the message be ended. The working may be best explained by an example. Suppose the key-word be Edna. The sliding column is then moved so that the E on its upper alphabet comes opposite the A on the fixed alphabet. Each letter on the sliding alphabet is used as a substitute for its equivalent on the fixed alphabet. With the columns in this position the first letter of the message is written down. Then the D of the sliding scale is moved opposite the fixed A and the second letter written down. Then N is moved opposite A and the third letter written. The fourth letter does not change. For the fifth letter the E scale is again used, and so on. Thus, with the key-word given above, the sentence 'Send help at once' would appear as

'Whad lhyp ew bugh.' The first work of the decipherer in cases of this kind is to see the letter which is used most frequently. In Eng., this will correspond to the letter e. The letters which are most frequent after e are the following: t, a, o, n, i, r, s, h, d, l, c, w, u, m, f, y, g, etc. All the single letters must be either A, O, or I. The double letters which recur most frequently are ee, oo, ff, ll, ss, and the commonest words of two letters are, roughly speaking, of, to, in, it, is, be, he, by, or, as, at, if, etc. A special study of the subject will discover a great number of symmetrical combinations of letters which occur with greater or less frequency in all languages, and which will materially aid in the work of solving cryptograms. See P. Thicknesse, *Treatise on the Art of Deciphering and of Writing in Cipher*, 1772; A. Langie, *Cryptography* (trans.), 1922; A. Fige, *Système des Chiffres*, 1926.

Cryptomeria, genus of plants belonging to the order Coniferae. *C. japonica* is a large pyramidal evergreen tree which grows to a height of 100 ft. It is a native of China and Japan.

Cryptoprocta Ferox, species and genus of Viverridae, or civets, is the fossa of Madagascar and constitutes in itself the sub-family Cryptoproctinae. In appearance it resembles a large pole-cat, 3 ft. in length, and in colour it is reddish-brown. It is active, carnivorous, and extremely ferocious.

Crystalline Rocks comprise those that have a crystalline structure, as opposed to those that are elastic. This crystalline form may be either original or may have been caused by the action of great heat and pressure. The origin, in fact, cannot be taken into account with these rocks, for some of the aqueous rocks, e.g. rock salt and gypsum, owe their origin to chemical precipitation from water, while others have arisen from igneous rocks, e.g. lava. Again, the crystalline schists (q.v.) belong to this group, although they present a foliated character. In this case it seems certain that the change in structure has been induced by the physical conditions. The igneous rocks are now known as *massive* crystalline, as opposed to the schistose crystalline structure.

Crystallisation, formation of crystals by a substance when it passes from a liquid to a solid state. The molecules tend to arrange themselves so as to form polyhedra. Most organic and inorganic substances can be obtained in a crystalline form. See further under CRYSTALLOGRAPHY.

Crystallites, stages in the formation of crystals which occur in volcanic rocks. When examined under the microscope, these rocks consist largely of a glassy base, and through this base are scattered great numbers of tiny crystals and C. C. may also be produced by allowing a solution of sulphur in carbon disulphide, mixed with Canada balsam, to evaporate slowly, and the development of the C. can then be noted on a microscopic slide.

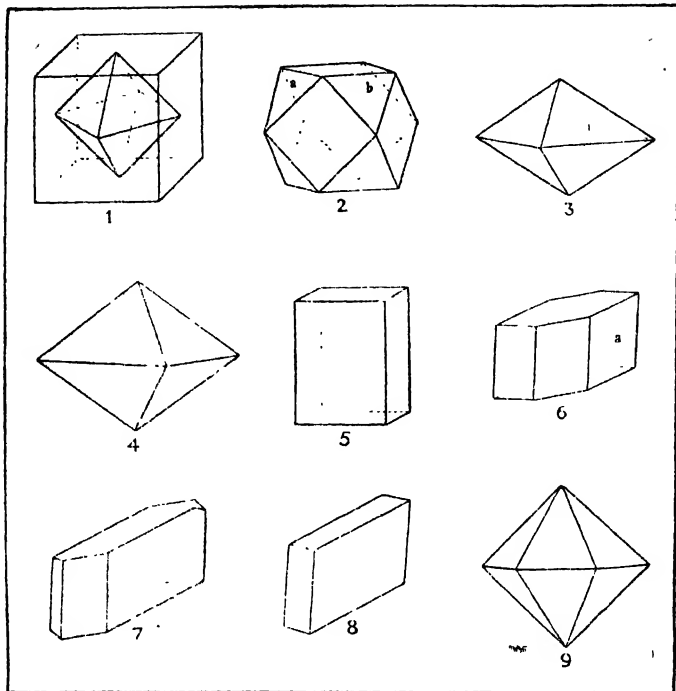
Crystallography (Gk. *κρύσταλλος*, ice; *γράφειν*, to write), the study of the form, structure, and properties of crystals. When matter passes into the solid state from the liquid or the gaseous state, it may take an *amorphous* (shapeless), or a *crystalline* form, when there is a remarkable similarity between crystals of the same substance. The formation of crystals appears to be favoured by a gradual transition from the fluid to the solid state, as when a substance in solution is deposited by the gradual cooling or evaporation of the liquid or when the transition occurs directly from the gaseous to the solid state. The molecules then tend to arrange themselves so as to form polyhedra, and this tendency is encouraged by the presence of a crystal of the same, or of a similar, substance. Most organic and inorganic substances can be obtained in a crystalline form; sugar, salt, and alum readily crystallise from solution; metals such as cast iron and zinc solidify from fusion in a crystalline form; but the most perfect examples are those resulting from the gradual cooling of the earth's crust. The science of C. deals mainly with minerals thus crystallised, and may therefore be regarded as a sub-div. of the science of mineralogy. When the object of study is the form of crystals, it is known as *Morphological* or *Geometrical* C.; the structure and properties are studied under the name of *Physical* C.

There are three principles which characterise the crystalline form; they are indicated by the terms constancy of angles, symmetry, and rationality. Although there may be irregularities and imperfections of form in crystals of the same substance the angles between their faces are invariably the same. The symmetry of crystals is not necessarily one of position, but is one of direction; that is, the edges and faces may be arranged so as to give the same direction with respect to certain axes or planes without correspondence in linear dimensions. A cube is symmetrical about its central point; that is, its faces are arranged in parallel pairs about that point. It is also symmetrical about certain axes: the lines joining opposite corners (four axes); those joining the middle points of diagonally opposite edges (six axes); and those joining the middle points of opposite faces (three axes), giving a total of thirteen axes. A cube may also be divided into two symmetrical halves by certain planes: those passing through four corners (six planes), and those passing through the middle points of four edges (three planes); giving a total of nine planes. A cube therefore is symmetrical with respect to twenty-three elements altogether. Other crystalline forms display fewer types of symmetry. The principle of rationality depends on certain systems of notation by which the directions of the faces are indicated. Suppose three edges formed by the intersection of three faces be taken as axes of reference. Any face can now be defined by the intercepts cut off by it on these three axes. As the direction, but not the dimensions, of the face is re-

quired, the ratio of these intercepts is sufficient for the purpose. It has been found empirically that these ratios are simple numbers, as 1 1 2, 2 3 1, etc., and they can never involve incommensurable surds as $\sqrt{2}$ or $\sqrt{5}$. The system of notation indicated is known as Weiss's, but it has been to a great extent superseded by Miller's, in which the reciprocals of Weiss's figures are used. Thus the Weissian index (231) becomes, according to Miller, $\frac{1}{2} : \frac{1}{3} : 1$, or 3 2 6.

Systems.—According to the number and nature of the axes of symmetry, crystals may be divided into six groups or systems: (1) Cubic or isometric system, where the three crystallographic axes of reference are at right angles to each other and are equal in length. (2) Tetragonal or pyramidal system, where the three axes are all at right angles to each other, but only two are equal. (3) Rhombic, orthorhombic or prismatic system, where the axes are all at right angles, but are of different lengths. (4) Oblique or monoclinic system, where two of the axes are at right angles and the third oblique, all the axes being of different lengths. (5) Anorthic or triclinic system, where the angles between the axes are all oblique and the axes of different lengths. (6) Hexagonal system, where there is one principal axis of symmetry and six axes of symmetry at right angles to it. Where all the planes or faces required by the complete symmetry of the system are present, the form is said to be holohedral. Sometimes only half of the full number of faces are present; the form is then said to be hemihedral, and when only a quarter are present the form is called tetrahedral.

Crystals corresponding exactly to the types as set down in the systems are comparatively rare, imperfect or multiple development rendering it often necessary to assume the existence of faces which cannot be observed. Where a prism is terminated by pyramids, it often happens that one end only is complete, the other forming the surface of attachment to the rock. Occasionally *hemimorphism* is met with; this is a condition in which the ends belong to different forms. Crystals are often massed together to form a group. *Parallelism* then occurs, in which two crystals are compounded so that a line joining their centres lies along a crystallographic axis or is parallel to it. Alum commonly shows this phenomenon. In *twin-grouping* two crystals have a common face. If the crystals be regarded as penetrable, and the faces in contact are looked upon as moved parallel to themselves each through the other crystal, a form is obtained which is known as a penetration twin. There may be three or even more individuals in such a group, when their identification by form may become somewhat difficult. Many other irregularities occur, such as are commonly produced in the laboratory when a fairly regular individual is introduced into a solution to promote the deposition of the solid. Certain faces are developed at the expense of others, producing a distorted condition. When



Cubic system: 1. Relation of Cube to Octahedron; 2. Cubic Octahedron. *Tetragonal System:* 3. Square Octahedron (obtuse). *Rhombic System:* 4. Rhombic Octahedron (obtuse); 5. Rectangular Prism. *Monoclinic System:* 6. Prism in which two edges are truncated by the face and producing an oblique six-sided prism. *Triclinic System:* 7 and 8. Oblique Rhomboidal prisms. *Hexagonal System:* 9. Double six-sided pyramid.

imperfections are so numerous as to disguise the crystalline structure of a mineral completely, it is said to be *massive*.

Physical Crystallography.—There are certain physical properties characteristic of the crystalline form. By *cleavage* is meant the tendency of a crystal to split along certain planes when subjected to a wedging force. These planes are always parallel to a face or a possible face of the crystal. When a crystal is broken to pieces by a crushing blow, the fragments usually are bounded by a few planes only, showing the tendency to break in particular directions. When a crystal is struck by a sharp point, percussion lines are produced which agree in number and direction with the symmetry of the face. A crystal immersed in a solvent is acted upon in a manner which shows differing degrees of resistance according to the symmetrical arrangement of the particles. Etched figures are produced which beautifully illustrate the simple form of

the particular crystals. The hardness of a crystal face depends on its direction.

The optical characteristics of various crystals are often used as an aid to identification. They may be classified primarily as opaque, translucent, and transparent. Opaque crystals do not allow light through at all, translucent crystals allow light to pass without allowing definite outlines to be seen, just an oiled paper and ground glass act. Transparent crystals allow light to pass through, but the direction of the ray is bent or refracted. Crystals of the cubic system are isotropic, that is, they refract singly. Other crystals are doubly refracting, the ray being split into two. This property is best illustrated in calcite, or Iceland spar. It is found, however, that the difference in direction of the transmitted rays varies according to its direction with respect to an optic axis. When the ray travels parallel to an optic axis, it is transmitted as a single ray. Crystals which possess

one such axis are called *uniaxial*; to this class belong hexagonal and tetragonal crystals. Those with two optic axes are known as *biaxial*; such are rhombic, oblique, and triclinic crystals. The colour of crystals may be due to their own inherent absorptive qualities, when they are known as *idiochromatic*; or may be due to adventitious substances, when they are called *allochromatic* crystals. The behaviour of crystals with respect to heat corresponds to their optic properties; the conductivity is greatest along the optic axes. Expansion by heat also varies in different directions, producing change of form.

Substances identical in chemical composition may crystallise in two different forms. Such substances are termed dimorphous; examples are *Carbon*, crystallised in the cubic system as diamond, and in the hexagonal system as graphite; *Sulphur*, in the rhombic system when deposited from solution in carbon bisulphide, and in the oblique system when crystallised from fusion. An example of trimorphism is *Silica* crystallised in the hexagonal (tetrahedral) system as quartz, in the hexagonal (holohedral) system as tridymite, and in the rhombic system as *asmanite*. Minerals of analogous constitution often have similar crystalline forms. Such a condition is termed isomorphism. For example, the rhombohedral carbonates calcite, magnesite, dolomite, siderite, ankerite, etc., are similar in form, cleavage, and optical properties. In each case the mineral may be represented by $R'CO_3$, where R' denotes equivalents of the analogous metals, calcium magnesium, iron, manganese, zinc, etc., or combinations of two or more of those metals.

See J. D. Dana, *Manual of Mineralogy*, 1879; W. J. Lewis, *Treatise on Crystallography*, 1899; P. Groth, *Introduction to Chemical Crystallography*, 1906-8; W. Voigt, *Lehrbuch der Kristallphysik*, 1910; A. E. H. Tutton, *Crystallography and Practical Crystal Measurement*, 1922; and *Natural History of Crystals*, 1924; G. Friedel, *Leçons de cristallographie*, 1926; A. Joffé, *The Physics of Crystals*, 1928; D. B. Briggs, *The Study of Crystals*, 1930; and A. W. Wooster, *A Text Book on Crystal Physics*, 1938.

Crystallomancy (Gk. κρύσταλλος, crystal; μαντεία, prophecy, divination), means of divination by the hypnotic condition caused by gazing fixedly into a crystal, mirror, or pool of ink. This practice has been followed in all ages as a means of foretelling the future. A beryl was most often used. The operator, having muttered certain formulas over it, handed it to a pure youth or maiden, who was then supposed to be able to reveal the future. The desired knowledge was obtained by means of written characters on the crystal, or by the appearance there of the spirits invoked. Dr. Dee was a noted adept at C., two of his 'magic mirrors' being now in the Brit. Museum. See Shorthouse, *John Ingleton*, 1881; books on crystal-gazing by Melville, 1903, and Thomas, 1905.

Crystal Palace. This building, mainly of glass and iron, with wooden floors, was first erected in Hyde Park, London, for the Great Exhibition in 1851. It was designed by Sir Joseph Paxton, was 1608 ft. long, 21 ac. in area, and cost £1,540,000. It was taken down and re-erected at Sydenham, where Queen Victoria opened it in 1854. The central transept was 390 ft. by 120 ft. and 175 ft. high; the S. transept was 213 ft. long, and a similar N. one was burnt in 1866. Its greatest width was 384 ft. Intended as a permanent exhibition of the art and culture of all nations, it had a series of courts representing the architecture and sculpture of different civilisations, a picture gallery, museum, and school of practical engineering. From 1855 to 1901 the famous C. P. Saturday concerts (symphony concerts) were held there under the direction of August Manns. From 1859 to 1912 the Handel festival took place at the C. P. every three years, and after the First World War performances were given at irregular intervals. There are magnificent grounds of about 200 ac. and for many years the Football Association cup final was played there. The C. P. was burned down on Nov. 30, 1936.

Crystals, Etching of, see ETCHING OF CRYSTALS.

Csaba, tn. of Hungary in the co. of Békéscsaba. There are distilleries and flour mills, and a trade in corn, hemp, wine, etc. Pop. 44,000.

Csanád, co. and tn. of Hungary, bounded by the Maros on the S. The chief tn. is Makó. A considerable part of C. was allotted to Rumania after the First World War. Pop. 130,000.

Csárdás, or **Czardasch** (Hungarian *csárda*, tavern), Hungarian national dance, consisting of two movements, *andante* and *allegro*, in $\frac{3}{4}$ or $\frac{2}{4}$ time throughout. The two parts are called the 'lassu' and the 'friss' (*frischka*), the former being mostly in the minor mode, the latter in the major. Any number of couples may dance it, all doing different steps and figures.

Csepel: 1. Is. of Hungary, 30 m. long, enclosed by two arms of the R. Danube, just below Budapest. C. was once a favourite summer residence of the kings of Hungary. Fruit and wine are produced. 2. Suburb of Budapest on the C. Is., with metal and steel industries. Pop. 14,000.

Csokonay (Csokonai), Vitéz Mihály von (1773-1805), Hungarian poet and prof. at Debrecen. He was above all a lyricist, and inspired by the Hungarian folk-songs he helped to develop the national poetry. Among his most popular works may be mentioned *Magyar-Musa* (1796); *Amaryllis* (1803); *Dorottya* (1804, similar in style to Pope's *Rape of the Lock*); *Anakreoni Dalok*; *A Pásztor Király* (1806). His collected works appeared in 1844-45 and 1924.

Csoma de Kőrös, Alexander (Sándor) (c. 1790-1842), famous Hungarian traveller and orientalist, educated at Nagy-Ényed College, then at Göttingen. His life-long ambition was to discover the real

origin of his race—the Magyars—supposed to have come from Asia, but he d. leaving the problem unsolved in spite of all his efforts. While journeying to Tibet and China to continue his researches, he d. at Darjeeling. See T. Duka's life, 1885.

Csongrad, tn. of Hungary, in the co. of C. (pop. 150,000, cap. Szentes). An important trading centre situated at the confluence of the Tisza and Körös, 70 m. S.E. of Budapest. Pop. 27,000.

C.S.R., abbreviation for Československá Republika, or Czechoslovakia.

Ctenodactylus (Gk. κτείς, comb; δάκτυλος, finger), genus of rodent in the family Otodontidae, which contains the coypu and porcupine rats. *C. Massoni*, Masson's comb-rat, is the single species, and is a native of the Cape of Good Hope.

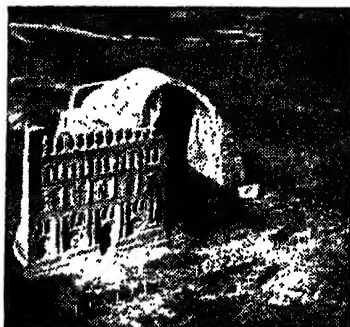
Ctenophora (Gk. κτείς, comb; φάρος, bearing), large div. of the Coelenterata (q.v.) which consists of free-swimming marine animals, gelatinous in structure, and usually phosphorescent. *Cestum veneris*, the Venus's girdle, is a beautiful example.

Ctesias (Κτήσιος) (d. c. 396), Gk. physician and historian of the fifth century B.C., native of Cnidus, Asia Minor. He accompanied the expedition of the younger Cyrus against Artaxerxes, and was captured by the Persians at the battle of Cunaxa, 415. For about seventeen years he then remained as physician at the court of Artaxerxes Mnemon. A contemporary of Herodotus, his jealous mind is revealed in his attempt to depreciate that historian's work. Fragments of his *History of Persia* (Ἱστορίκα), in twenty-four books, and *Treatise on India* (Ἰνδικά) are extant, and there are abridgments of each by Photius. He is more important as a source of romance than as a serious historian. Fragments of his works have been ed. by Müller (appendix to C. Dindorf, *Herodotus*, 1844); J. Bähr (1824), and J. Gilmore (1888). Consult C. Blum, *Herodotus and Ctesias*, 1836; J. Mahaffy, *History of Greek Literature*, 1895; and C. Wachsmuth, *Einleitung in das Studium der alten Geschichte*, 1895.

Ctesibius (Κτησιβίος) (c. 250 B.C.), Gk. physicist of Alexandria, famous for various mechanical inventions. Among these are the clepsydra (water clock), force-pump, hydraulic organ, and other machines. C. was first to discover the elastic force of air and to apply it as a motive power. Hero of Alexandria was his pupil and helper.

Ctesiphon (Κτησιφών), anot. city of Mesopotamia, on R. Tigris, 20 m. from Bagdad, materials for which city were supplied by its ruins. Mentioned by Polybius (v. 45) and Ammianus (xxiii. 6), it rose to importance under the Parthian, and later Persian, empire. Strabo describes it as the winter residence of the Parthian kings, and Tacitus (*Ann.* vi. 42) calls it 'redes imperii.' The modern equivalent is Tak-i-Kesra, while the ruins of anot. C. and of Seleucia (on opposite bank) are together called El-Modell (Al Madain, the two cities) by the Arabs. It was captured by various Rom. emperors

between A.D. 116 and 362. In the fourth century C. was the cap. of the Sasanian dynasty. Yezdigerd surrendered it to the conquering Arabs, 637. The façade and arched hall or throne-room of a marvellous palace, said to have been built by Chosroes I., are included in the ruins left. During the First World War an important battle was fought here between the Turks and the Brit. In the summer of 1915 Gen. Sir Charles Townshend advanced up the R. Tigris, capturing Amara and Kut-el-Amara. Pushing on from here with an inadequate force he advanced towards C. and on Nov. 21 drove the Turks from a strong position at Lajj and then prepared for an assault on their position at C. itself. He attacked on



E.N.A.

THE PALACE OF CTESIPHON

The parabolic vaulting has a span of 86 ft. On the left is the façade of the east wing of the palace

the night of Nov. 22; but, though he met with some initial success, the Turkish reinforcements were so overwhelmingly strong that Townshend was compelled to withdraw to Kut-el-Amara, where he eventually surrendered. See S. W. G. Benjamin, *Persia and the Persians*, 1887; and O. Renter, *Die Ausgrabungen der deutschen Ktesiphons-Expedition im Winter 1928-29* (with bibliography), 1930.

Cuango, see CONGO.

Cuanhuahua, see CUERNAVACA.

Cuba, largest is. of the W. Indies, an independent republic, at the mouth of the gulf of Mexico, 130 m. from Florida, separated from it by Florida Strait. Lies between 74° and 58° W. long., and 19° and 23° N. lat. Separated from Haiti on the E. by Windward Passage, from Jamaica on the S. by the Caribbean Sea, from Yucatan on the W. by Yucatan Channel. Length from Cape Maisi (E.) to Cape San Antonio (W.), 730 m.; breadth 20-90 m.; area (with is. of Pines and numerous is.) 46,730 sq. m. The coast-line is mostly abrupt and steep; a large marshy depression (*trocha*), 45 m. wide, connecting Morón and the S. coast, divides C. into two distinct parts, E. and W. There is a series of terraces on the E.

The coasts are very dangerous owing to reefs and shallows extending nearly 2½ m. out to sea, but there are good harbours and bays, as at Havana (cap.), Guantánamo, Santiago de Cuba, Manzanillo, Bahía de Jagua, Cabañas, Padre, and Matanzas. There are mt. ranges all over the is., the highest being in the E., and all grouped near the coasts. The Sierra Maestra, or Grupo Macabá, culminates in Pico Turquino or Monte Azul (about 8400 ft.), and is continued in the Sierra del Cobre. Near by is the hill region W. of Yunque (the Anvil of Baracoa, 1825 ft.), with Sierras de la Vela, Toar, etc. In the W. is a hilly dist., with Pico de Potrerillo, Sancti Spiritu, Pan de Matanzas in the N. (1280 ft.); Cordillera de los Orgaños (Pan de Guajabón, about 2000 ft.), stretching through Pinar del Río to Havana. Other peaks are Gran Piedra (5000 ft.) and Cerro de Oro (3000 ft.). The rvs. are not very large, the chief being the R. Cauto, flowing into Manzanillo bight; others are R. Saza, draining the swamps (*ciénegas*) to the N. of the Zapata peninsula, and Sagua la Grande. The climate is tropical, average temp 77°, rarely falling as low as 50°. Chief rainy season, May to Oct. Earthquakes are more frequent in the E. than in the W. The numerous forests contain mahogany, ebony, cedar, fustic wood, besides yielding dye-woods, fibres, gums, and resins. Flowers and shrubs also abound, including the royal palm. Bats, agoutis, and the solenodon are the only indigenous mammals. Birds are very numerous. The crocodile and caiman are found in the marshes. Other reptiles are the boa and iguana. C. is famous for scenic beauty, the Yumuri valley being one of the most lovely.

The chief products are sugar (nearly half the cultivated area being planted with sugar-canes, especially in Santa Clara and Matanzas, which supply one-quarter of the world's crop) and aromatic tobacco in Pinar del Río, particularly in the dist. of Vuelta de Abajo, the finest being produced on the banks of the San Sebastián, and made into the famous Havana cigars. Coffee-planting is now of minor importance, and none of the crop is exported. Other products are Indian corn, maize, rice, cacao, indigo, potatoes. There are many fruits (oranges, bananas, lemons, shaddocks, figs, etc.) and vegetables; mallochia grass and cassava are grown; cattle and poultry breeding are carried on, and wax and honey produced. Over 1,000,000 tons of sugar were produced in 1909, largely exported to the U.S.A., while in 1925-26 the crop amounted to 5,292,000 tons, some 1,600,000 ac. being under sugar plantations. The production then declined heavily, being limited by presidential decree and also by quota under an international agreement. In 1937 the crop was 2,971,000 tons. In 1947 there were about 2,750,000 ac. under sugar, and 500,000 ac. under tobacco, sweet potatoes, and bananas, and the sugar crop rose to nearly 6,500,000 ton after the removal of the above-mentioned restrictions. In the same year the tobacco crop was 60,000,000

lb., coffee 600,000 bags (each 132 lb.). The average tobacco crop is 500,000 bales (bale, 120 lb.). In 1943 the U.S.A. sent 78 per cent of imports and received over 88 per cent of the exports. Exports are mainly sugar, molasses, and tobacco; imports food, beverages, textiles, and machinery.

Iron ore is mined by Amer. companies near Santiago and Juragua. There are also manganese deposits, still some copper in Sierra del Cobre, asphaltum in the bay of Cardenas, and salt. Gold and silver are rare. There are more than 8700 m. of railway, admirably managed (public services 3000 m., private lines on plantations and in mining areas, 5600 m.). There are about 2200 m. of roads. Automobiles are much used and popular, and electric street cars run in most tns. Hotels are generally good. There is no colour bar. Sp. is the language of the is., but Eng. is widely understood. Education is free and compulsory. In 1861 only 19 per cent of the pop. could read and write, in 1925 85 per cent, but the percentage of illiterates rose in 1945 to 35-6. The Havana Univ. was opened in 1728, but until its enlargement under Amer. auspices in the first twenty-five years of this century no marked advance was made in secondary or higher education. Some Cubans work well, but the average countryman is said to work from Tuesday to Thursday and play the guitar, dance, and attend cock-fights the rest of the week. The poor are so because they are lazy. Bull-fights were abolished in 1899. In 1922 the first broadcasting station in Lat. America was installed at Havana. Chinese coolies and Negroes are much employed for labour. Chief tns.: Havana, 673,300; Holguine, 171,900; Camagüey, 156,800; Santa Clara, 122,200; Santiago de Cuba, 120,500; Sancti Spiritus, 104,500; Cienfuegos, 94,800; Guantánamo, 91,700; Bayamo, 90,100; Manzanillo, 79,300; Ciego de Avila, 78,500; Pinar del Río, 77,000; and Matanzas, 73,700; the six provs are Havana, Oriente, Las Villas, Camagüey, Matanzas, and Pinar del Río.

History.—Discovered by Columbus during his first voyage, on Oct. 27, 1492; he saw sev. of the natives going about with fire-brands in their hands, and certain dried herbs, which they rolled up in a leaf and, lighting one end, put the other in their mouths, and continued puffing out the smoke. A roll of this kind they called a *tabaco*. C. was colonised by Spaniards about 1510, Negroes replacing the Indians as slaves; it was a Sp. possession till 1898. (The is. was actually under Brit. rule for one year, 1762-63, when it was returned to Spain in exchange for Florida). In the seventeenth century C. was harassed by raids of Eng., Fr., and Dutch, who built the primitive fortifications of Havana and Matanzas as defences. The slave trade was abolished early in the nineteenth century, and the slaves were emancipated from 1880 to 1886. During 1868-78 there was war against the Spaniards for Cuban independence. In 1880 the Cortes

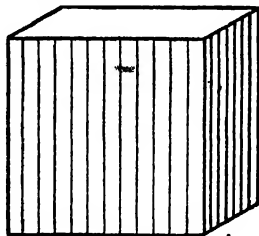
passed an Act to abolish slavery. The gov. of Spain was characterised by a generally corrupt administration, aggravated by internal unrest fermented by attempts at independence and consequential military repression. The separatist and autonomous movement culminated, late in the nineteenth century, in a fierce war, and, although the Madrid Gov. showed a conciliatory spirit, the agitation was continued. In 1898, during a second war for independence, the U.S.A. Gov. carried out their threat of intervention by sending the battleship *Maine* to Havana harbour. On Feb. 15 of that year the *Maine* was blown up in Havana harbour and 264 men were killed. War with Spain followed. C. was under Amer. military control, 1899-1902. In 1901 a republican form of gov. was estab., the first president being Estrada Palma. The 'Platt Amendment' contained guarantees against foreign interference. In 1903 a commercial convention was signed between C. and the U.S.A. In 1905 a rebellion against the governor was quelled by the U.S.A. Mr. Taft, U.S. secretary of war, was sent by President Theodore Roosevelt as mediator and became provisional governor, being succeeded by Magoon. The U.S. troops, under Gens. Funston and Bell, restored order. New educational measures were enforced, 1900. The new gov. was settled by President Roosevelt in Jan. 1909. The Amer. troops were finally withdrawn on April 1, 1909, and henceforth affairs ran smoother. During the First World War the high price of sugar brought phenomenal prosperity, which ended when the price of sugar fell from 23 cents to 2 cents a pound. The Cubans have left the development of their ls. largely to Amers. In 1933 a revolution was followed by provisional gov. until May 1936, when a constitutional gov. was elected. A new constitution was promulgated on July 5, 1940. Following the Socialist-Democratic victory at the general election of that year, Col. Batista assumed the presidency on Oct. 10 when the new constitution came into force. According to this constitution the Cabinet is responsible to Congress; if it receives a vote of no confidence, the Cabinet must resign in forty-eight hrs. C. declared war on the Axis (q.v.) on Dec. 11, 1941. The president for 1944-48 was Ramon Grau San Martin. The pop. is 4,778,500, of whom 3,553,300 are white and 1,225,200 coloured.

See W. J. Clark, *Cuba and the Fight for Freedom*, 1896; I. E. Canini, *Four Centuries of Spanish Rule in Cuba*, 1898; J. B. Atkins, *The War in Cuba*, 1899; J. H. Leslie, *Official History of the Spanish-American War* (Washington), 1899; —, Robinson, *Cuba and the Intervention*, 1906; I. A. Wright, *The Early History of Cuba, 1492-1536*, 1917; W. F. Johnson, *History of Cuba*, 1920; P. Terry, *Terry's Guide to Cuba*, 1926; C. E. Chapman, *A History of the Cuban Republic: a Study in Hispanic American Politics*, 1927; H. F. Guggenheim, *The United States and Cuba: a Study in International Relations*, 1934; H. Strode, *The Pageant of Cuba*,

1935; R. H. Fitzgibbon, *Cuba and the United States, 1900-1935*, 1935; R. G. Sanchez, *Manual de Historia de Cuba*, 1938; and H. E. Friedländer, *Historia Económica de Cuba*, 1944.

Cubango, Okavango, or Kubango, riv. of W. Africa, about 1000 m. long, rising near the Cuanza's sources, E. of Benguela, forming part of the boundary between S.W. Africa and the Portuguese Angola. It flows in a S.E. direction, and into Lake Ngami, under the name Tioje or Tonke (Tankhe).

Cubature, process of finding the volume of a solid. The word is parallel to quadrature, which means resolving an area into a number of squares, while C. means resolving a volume into a number of cubes. To find the value of a volume from particular data is an arithmetical problem in the case of parallelepipeds and is usually dealt with under the name of mensuration (q.v.). Where figures are bounded by curves the process is usually analytical, and is based on the theorems of Pappus of Alexandria, which state: (1) If any plane figure revolves about an external axis in its plane, the volume of the solid generated by the revolution is equal to the product of the area of the figure and the distance travelled by the centroid of the figure; (2) if any line in a plane revolves about an external axis in the plane, the area of the curved surface generated by the revolution is equal to the product of the length of the line and the distance travelled by the centroid of the line.



CUBE

Cube, regular solid bounded by six square plane faces, opposite sides being parallel, in such a way that three edges always meet at right angles to each other. In arithmetic the C. of a number is found by multiplying it by itself three times; thus the C. of $2 = 2 \times 2 \times 2 = 8$. Similarly the C. root of any number is that number which multiplied by itself three times gives the original number; thus the C. root of 64 is 4. The volume of a C. is measured by the C. of the length of a side; thus the volume of a C. with sides 2 in. long is 8 cubic in.

Cubebæ, berries of *Piper cubeba* and *P. guineense*, family Piperaceæ. Picked unripe and dried for medicinal use in cases of urinary and bronchial diseases. C. yield the oily compound cubebene and a resinous compound, cubebic acid.

Cubic Measure, see under **WEIGHTS AND MEASURES**.

Cubism. This term, applied to a school of art arising from Post-Impressionism, was first used by Henri Matisse in 1908 in reference to a picture by Braque: 'Encore des cubes! assez de cubisme!' But scorn and derision could not kill the movement, and three years later exhibitions of Cubist art were held in Paris and Brussels, while 1912 witnessed one in Barcelona. The actual founder of C. was the Sp. artist Pablo Picasso (b. 1881), follower of Paul Cézanne, the great Fr. Post-Impressionist, and Georges Braque was a close runner-up of Picasso. Cézanne had formulated the theory that 'everything in nature is modelled on the sphere, the cone, and the cylinder; one must first understand how to paint these simple figures, and one can then paint anything.' The Cubist makes no attempt to give an exact reproduction of any objects visualised, but by means of portraying their colours and solidity in his own peculiar style to show the impression they make on the artistic mind. C. is a passing phase of art and has made especial appeal to the Fr. mentality and temperament. Some of its chief exponents are André Derain, Fernand Léger, Albert Gleizes, Jean Metzinger, Francis Picabia, Joan Gris, the Russian sculptor Archipenko, and the Amer. Arthur Dove. See also **PAINTING**. See A. J. Eddy, *Cubists and Post-Impressionism*, 1915; A. Gleizes, *Du Cubisme*, 1920; F. Rutter, *Evolution in Modern Art*, 1926; R. H. Wilenski, *Modern Movement in Art*, 1927; and C. Giedion-Welcker, *Moderne Plastik*, 1937.

Cubit (Lat. *cubitum*, elbow), primitive linear measure employed by the ancients, equal to the length of the arm from the elbow to the tip of the middle finger. There is much discussion as to the exact length of the Heb. C., now generally fixed at 17 to 18 Eng. in. or 45.72 cm. The Rom. C. was about 17½ in., and the Egyptian C. ('C. of Memphis') about 20.7 in. See also **FOOT**, **PALM**, **SPAN**. See W. Smith, *Dictionary of the Bible*, 1863; 'Weights and Measures' in J. Hastings's *Dictionary of the Bible*, 1898.

Cubitt, Sir William (1785-1861), Eng. civil engineer of Norfolk. He was known as an inventor of machines, such as self-regulating sails for windmills, and the treadmill (1818, soon introduced into the jails of Great Britain). C. came to London, 1826, becoming engineer of the S.E. railway. He constructed the canal at Oxford, docks at But. Cardiff, and Liverpool, the Berlin waterworks, and various bridges. He also superintended the erection of the Crystal Palace in Hyde Park, 1851, and was knighted for this service.

Cucamas, see **COCOMAN**.

Cuchullin, **Cuchullinn**, or **Cuchulainn**, name of the chief warrior and hero in the Conchobar-Cuchullinn heroic cycle of Ireland. He is usually styled son of Sualdam, an Ulster warrior, but seems to stand in a special relation to the god Lug. C.'s earliest name was Setonta, and he was brought up at Dún Imbriht (Louth).

At the age of six he went to the court of Conchobar, king of Ulster. He slew the hound or watch-dog of Culann the smith, becoming for a time guardian of his domain instead, hence his name Culann's hound (Cu-Chullinn). Later the warrior slew the three sons of Necht, hereditary foes of the Ulstermen. After learning chivalry with Donnall the Soldierly and the Amazon Scathach in Alba, he married Emer, daughter of Forgall the Willy. At the age of seventeen he defended the Ulster frontier against the forces of Medb of Connaught. He was killed some ten years later by Lugaid and the children of Calatin Dána. Some place the date about the beginning of the Christian era. In *Fled Bricrenn* (Bricriu's Feast, eleventh or twelfth century) C. tells the story of a challenge and beheading similar to that of the Middle Eng. poem, *Sir Gawayne and the Green Knight*. See Eleanor Hull, *The Cuchullin Saga in Irish Literature*, 1898; and A. Nutt, *Cuchulainn, the Irish Achilles*, 1900.

Cuckfield, small mkt. tn. of Sussex, England, 12 m. N.W. of Lewes. It is noted for its fairs, held three times a year. Pop. of urb. dist. 11,000; of par. 2000.



Cuckoo, sub-family of the Cuculidae, family of the Cuculidae, containing nearly 200 species. The name is derived from the note of the common European C. (*Cuculus canorus*), which appears in England in the spring, migrating again to warmer climes as early as Aug. Most species are remarkable for their parasitic habits. There is no permanent attachment of male to female, and no nest is built. When the female has laid an egg on the ground she takes it in her bill and lays it in the nest of some other bird. The egg is then hatched, and the young bird is fed by the owner of the nest. When the young C. attains sufficient strength (and it early does this) it expels its foster-mother's young from the nest by working itself under them and jerking them out. The yellow-billed C. (*Coccyzus americanus*) incubates its own eggs.

Cuckoo-spit, or Froghopper. Sub-section Cicadellina, or the genus *Cercopidae*, ranked under the Homopterous sub-order of insects. The name froghopper refers partly to the form of their body, partly to their great powers of leaping. The common froghopper is *Aphrophora spumaria*; another species frequently met with in gardens is *A. bifasciata*. The larva of these insects, which, except in the lack of wings, resembles the perfect insect in most respects, envelops itself in a froth resembling human spittle. This is often observed on plants.

Cuculidae, family of the sub-order Cuculi of the order of birds Cuculiformes. It includes the cuckoos (q.v.) and their kin. They are found in greatest variety in the Indian regions. Cuculinae is Swainson's name for the sub-family of the C. which comprises the true cuckoos. The voice of the female is a mere clattering, and it is the male which utters the familiar call-note in the breeding season.

Cucumber, or Cucumis sativus, species of Cucurbitaceae, which is largely cultivated. It is a kind of trailing ann., and the unripe fruit is used for salads and pickles. The finest specimens are obtained from shaded plants growing in a warm, damp atmosphere, and therefore developing rapidly. When fine and long fruit are desired, the plant should not be allowed to bear early, and the female blossoms should be destroyed until the plant has become vigorous and well rooted in the bed.

Cucumis, genus of Cucurbitaceae, is indigenous to the tropics and to sub-tropical lands. In this genus the stamens are free and the tendrils are believed definitely to be modified leaves. *C. Melo*, the melon, is a valuable plant of which the native country is unknown, and with *C. sativus*, the cucumber, has been in cultivation for centuries. Tartary is sometimes assigned to the cucumber as its home.

Cucurbita, genus from which the order Cucurbitaceae takes its name. The species all grow in America, but their native country is entirely unknown, and they are cultivated in Europe, Asia, and Africa; most of them are edible and harmless. *C. Pepo* is the pumpkin, of which the squash and vegetable marrow are varieties; *C. maxima*, the common gourd or giant pumpkin, is well known in N. America.

Cucurbitaceae, widespread natural order of dicotyledonous plants, most of which are of a trailing or climbing habit. Many of the species are useful or remarkable, for the order comprehends such plants as the melon, gourd, cucumber, colocynth, and bryony. The fruit is generally fleshy, and is often very large; the melon is typical, with a berry-like fruit called a *pepo*; the seeds are exalbuminous. Some of the prin. genera are *Cucurbita*, *Cucumis*, *Lagenaria*, and *Bryonia*.

Cucuta, or San José de Cucuta, tn. of the dept. of Norte de Santander, Colombia, S. America, on the Venezuelan frontier. The tn. was destroyed by an

earthquake, 1875. Coffee is largely cultivated there. Pop. 77,400.

Cud, sodden bolus of hastily swallowed fodder which ruminants drive back from the paunch into the mouth to be leisurely chewed, when semifluid is formed which repasses into the stomach.

Cudahy, manufacturing city in Milwaukee co., Wisconsin, U.S.A. Pop. 10,500.

Cuddalore, Kudalur, or Gudalur, tn. and port of Madras, India, cap. of S. Arcot dist., 15 m. from Pondicherry on the Coromandel coast. It has extensive trade, exporting quantities of grain and ground nts by sea, and carrying on much trade also by land. Native craft only can come right up to the tn., but there is good anchorage in the roads, 1½ m. from shore. Two naval actions took place off C.: (1) The drawn action of 1758 between Vice-Adm. Pocock and Comte d'Aché, in which the Fr. suffered heavier losses than the Brit.; (2) the engagement between Vice-Adm. Hughes and the Bailli de Suffren in 1783. This too was indecisive, but Suffren gained the relief of C., and Hughes had to go on to Madras. In 1795 it was finally acquired by the Brit. Pop. (mostly Hindus) 52,000.

Cuddapah, tn. and dist. of India, in the Madras presidency, situated on the R. C., 140 m. N.W. of Madras. It has a dist. court-house and jail and, formerly, had a cantonment. Soda is obtained from the hills in the dist., also salt and saltpetre; there are diamond mines in the neighbourhood. Pop. 18,000.

Cuddesden, or Cuddesdon, par. of Oxfordshire, England, Henley div., 6 m. from Oxford, 2 m. from Wheatley station. The palace of the bishops of Oxford is here, and a theological college. Pop. 900.

Cudgogong, mining township of Wellington co., New S. Wales, 45 m. from Bathurst, on R. C. Gold, iron, coal, and copper are found. Pop. about 3000.

Cudillero, or Oleiro, small seaport of Spain, in Asturias, 20 m. from Oviedo, on the bay of Biscay. Pop. about 11,000.

Cudworth, Ralph (1617-88), Eng. philosopher and clergyman, son of a chaplain of James I., b. in Somersetshire. He graduated at Cambridge, becoming fellow and tutor of Emmanuel's, 1639. C. was at one time rector of N. Cadbury, Somersetshire (1650). In 1642 he pub. *Discourse Concerning the True Nature of the Lord's Supper and The Union of Christ and the Church shadowed or in a Shadow*, the first causing much controversy long after his death. In 1645 master of Clare Hall, and in the same year regius prof. of Heb. In 1654 C. was elected master of Christ's College; 1678 he became prebendary of Gloucester. His chief work, *The True Intellectual System of the Universe*, also appeared in 1678. It displays great learning, liberality, and independence of mind. He favoured the platonic philosophy, but in physics adopted the atomic theory. From their views the group of which he was leader was known as Cambridge Platonists. This famous work attempted to confute all the reason and philosophy

of athelism, and to demonstrate its impossibility. His *Treatise Concerning Eternal and Immutible Morality* was pub. in 1731. A number of his unpublished MSS. are in the Brit. Museum. Among C.'s sermons was one preached before the House of Commons, showing the close connection of religion and morality, and laying the basis for union between philosophy and religion. His daughter, Lady Masham, was a friend of John Locke. See J. Tulloch, *Rational Theology and Christian Philosophy*, 1872; C. de Remusat, *Histoire de la philosophie en Angleterre*, 1875; C. E. Lowrey, *The Philosophy of Ralph Cudworth*, 1884; J. Multhead, *Platonic Tradition in Anglo-Saxon Philosophy*, 1931; and J. Beyer, *Ralph Cudworth als Ethiker, Staatsphilosoph und Aesthetiker*, 1935.

Cue, tn. of W. Australia, chief in the Murchison goldfield dist. It is connected with Geraldton by rail.

Cuenca: 1. Prov. of New Castle, Spain, chiefly a mt. and plateau region. The elevated tract Serranía de C. has large coniferous forests. Area 6588 sq. m. Pop. 349,700. 2. Also cap. of above prov. on R. Júcar, 80 m. from Madrid. It has ruined walls, a cathedral (with chapel of the Albornoces), many churches, and the episcopal palace. Its industries are unimportant. There is a famous bridge, 140 ft. high, across the stream Huecar. Near by is Ciudad Eucantada, with its wonderful stalactite deposits. Pop. 15,600. 3. Cap. of the prov. of Azuay, Ecuador, S. America, is 9000 ft. above the sea. It has 53,800 inhab., a cathedral, univ., trades in conserves, corn, and cheese, and makes woollen goods, hats, and earthenware. Near by are sulphur springs.

Cuernavaca (formerly Cuauhuahua), tn. of Mexico, cap. of Morelos state, 36 m. from Mexico. It is finely situated, and has an agric. academy, a church built by Cortés, and important sugar industries. It is growing popular as a health resort. Pop. 8200.

Cues, Nicolaus von, see CUSA, NIKOLAS OF.

Cuesmes, com. and tn. of Hainault, Belgium, 3 m. from Mons. It has coal-mines and railway workshops. Pop. 10,000.

Cuesta, name given by Amer. geologists to a certain land formation consisting of an unsymmetrical ridge with a strong escarpment on one side and a gentle slope on the other. Of Sp. origin, the name is used in New Mexico and S.W. U.S.A. for low ridges of this kind. The Cotswold and Chiltern Hills are Cs. or scarped ridges.

Cueva, Juan de la (1550-1607), Sp. poet, b. at Seville. He wrote various kinds of poetry, and his plays are important for their departure from the classic model and their more romantic style. He was one of the founders of the Sp. national drama. Among his works are *Primera Parte de las Comedias y Tragedias* (1588); the epic *Betico* (1603); and *El Exemplar Poético* (1605), the first Sp. didactic poem. See G. Ticknor, *History of*

Spanish Literature, 1849, and M. Menéndez y Pelayo, *Ideas Escléticas*, 1940.

Cuevas de Vera, tn. of Spain on R. Almanzora, 42 m. from Almería. Important for the silver mines in the Sierra Almagera. There is a rich agric. dist. all round, and saltpetre is found. Pop. 24,000.

Cui, César (César Antonovitch) (1835-1918), Russian military engineer and musical composer, b. at Vilna, son of a Fr. officer, a survivor of Napoleon's army, who was unable to follow the retreat from Moscow (1812). C. was educated at the Vilna Gymnasium, and studied music with Moniuszko. He soon entered the military college at St. Petersburg (1850), becoming prof. on fortification there and elsewhere. Among his most noted pupils were Skobeloff and the Emperor Nicholas II. His songs, choral and orchestral works, etc., include *William Ratcliff* (1869); *The Captive in the Caucasus* (1873); *Angelo* (1876); *Le Flibustier* (for Richelieu's comedy) (1894); and *Mam'zelle Pif*. Other works are *La Musique en Russie* and *A Short Manual of Field Fortification*. See Countess de Mery-Argeteau, *César Cui*, 1888.

Cuinchy, vil. in N. France, to the S.W. of La Bassée. In the First World War, C. came within the area covered by the battle of Loos. Sept. 1915 (see LOOS, BATTLE OF). The main advance took place on Sept. 25. This was preceded by a two days' bombardment. Although the Brit. had used gas, the atmospheric conditions proved unfavourable for its employment, and to this cause is attributed the initial unsuccessful attack on C.; but the Brit. success on other parts of the front caused the Ger. forces to give way eventually at C.

Cuirass (Lat. *corium*, leather), originally a jerkin or leather garment for soldiers, strong enough to be proof against pistols or even muskets. The name was later applied to plate armour protecting the body from the neck to the waist. The C. was strictly the metal covering the front of the wearer, but is now commonly applied to both breastplates and back-plates. These are hooked or buckled together, with a piece joined to the back called the *culet*, or *parde de retines*. In antiquity they were commonly made of bronze or iron, and in the fourteenth century formed a regular part of medieval armour. After Waterloo certain historical Cs. were adopted for modern use. For parade purposes various corps wear richly decorated leather Cs.

Cuirassiers, name of a kind of heavy cavalry, a survival of the men-at-arms of feudal armies and of the troopers of the sixteenth and seventeenth centuries, who wore cuirasses and helmets. The first Austrian corps of 'kryassers' was formed in 1484 by Emperor Maximilian; by 1705 there were twenty such regiments. The Prussians C. were so called under Frederick William I., playing a prominent part in the wars of Frederick the Great. In France C. date from 1666. Until comparatively recent years both Fr. and Ger. armies had twelve cuirassier regiments

each, the Russian four. The Eng. Life Guards and Royal Horse Guards had steel cuirasses given them in 1821, but they are not worn on active service, and the name C. is no longer used.

Cujas, Jacques (Latinised name, Cujacius) (1522-90), Fr. juriconsult, b. at Toulouse. He studied law under Arnoul Ferrier. His great reputation as a jurist was gained through his lectures on Rom. law as studied from the originals instead of from the works of commentators. He had an enormous library of old Rom. MSS., of which the greater part have unfortunately been scattered and lost. Besides his lectures on Justinian, he pub. notes on the *Receptæ Sententiæ* of Paulus and *Paratitla*, or summaries of the *Digest*, particularly of the Code of Justinian. The best collection of his works is that pub. by Fabrot at Paris (1658) in ten vols.; republished at Naples and at Venice with additions (1758-83) in eleven vols. See J. Berriat Saint Prix, 'Mémoires de Cujas,' appended to his *Histoire de Droit Romain*, 1821, and E. P. J. Spangenberg, *Jacob Cujas und seine Zeitgenossen*, 1822.

Culasi, or Colasi, tn. of the Philippine Is. It is situated on the coast of Panay, and is noted for its fisheries. It produces also rice, pepper, coco-nut oil, and cotton. Pop. 15,000.

Culbin, regions of sand situated in the N.W. of Morayshire, in Scotland.

Culdees (Celtic *ceile De*, a companion of God), anct. religious community once found in Ireland and Scotland. Their origin and early hist. are very obscure. It is probable that they originated when the rule of St. Chrodigang, archbishop of Metz (d. 766), was introduced into Ireland by the Irish priests. The rule, originally instituted for secular priests under no monastic vows, was extended to include the anchorites, and the order of C. became a sort of annex to the regular monasteries. They apparently had charge of the sick and poor, and assisted in the musical part of the religious services. They never attained to great importance in Ireland, but when they crossed to Scotland at the end of the eighth century they found their opportunity awaiting them by reason of the gap left by the expulsion of the Iona monks by Nechtun, king of the Picts, in 717, and the inadequacy of the Rom. monks from Northumbria who had come to fill their place. Their life henceforward was very similar to that of the secular canons in England. The pictures of them in the twelfth century, when the first authentic records of them are found, vary considerably. Each culdee monastery was an independent community which gave obedience to none save its own abbot, and with no ties connecting it with the others. The community within the monastery seems to have been divided into two sections, one conducting the religious services and the general offices of a religious body, while the other had apparently so far cast off the rules of monastic discipline as to marry and practically live the life of ordinary laymen. Indeed, tradition says that the C.

of Dunkeld were all married, only living apart from their wives during their period of service at the altar. The chief culdee houses were at St. Andrews, Dunkeld, Loch Leven, Monymusk, and Abernethy. In the reforms inaugurated by St. Margaret and carried out by her son David I. the C. became canons regular or were absorbed into the regular religious orders. By the beginning of the fourteenth century, the C. as a separate body had disappeared in Scotland. The older view, which was held by some Protestant and Presbyterian writers, that the C. were the first teachers of Christianity, which they preserved free from the corruptions of the Rom. Church, until they were finally stamped out by the persecutions of the latter, has been effectually disproved by Wm. Reeves (1815-92), bishop of Down, Connor, and Dromore. See J. Jamieson, *Historical Account of the Ancient Culdees*, 1811; W. Reeves, *The Culdees of the British Islands*, 1864; and W. F. Skene, *Celtic Scotland*, 1876-80.

Culebra, or Passage Island: 1. An is. of the W. Indies in the Virgin group, 18 m. from Cape San Juan, Porto Rico. 2. A naval station of the U.S. fleet Pop. about 1000.

Culenborg, see KULENBURG.

Cullacan, Mexican tn. and the cap. of the state of Sinaloa. It stands on the R. C. lles W.N.W. of Durango, and a line of railway connects it with Altata, the port. The tn. itself was founded in 1531, and is the seat of a bishop. Pop. about 93,300.

Culcides, the dipterous insects known to us familiarly as the mosquito, midge, and gnat family, are widely distributed, and in Britain they are represented by about a dozen species. The female is extremely harmful, but the male is harmless. The eggs are laid on substances floating in stagnant water, and the larvae live on the surface. *Culex pipiens* is a mosquito frequently found in Britain, and it also inhabits the E. Indies.

Cullon, community of nearly 5000 lepers on a small is. to the N. of Palawan prov., Philippine Is. They elect their own council and supply the policemen and other subordinate officials. Many have been completely cured.

Cullar de Baza, tn. of Granada, Spain, 68 m. from Granada. Pop. 8000.

Cullen, Paul (1803-78), Irish Rom. Catholic prelate; educated in Rome, and rector of the Irish college there, and of the Propaganda College in 1848, securing Amer. protection for it to prevent confiscation of its property during the revolution under Mazzini. Plus IX. made Dr. C. archbishop of Armagh and primate of Ireland in 1849. He was translated to the diocese of Dublin in 1852, and was created a cardinal in 1866, being the first Irishman to attain to that dignity. Cardinal C. aided O'Connell, and helped the Brit. Gov. to suppress Fenianism. At the Vatican Council he advocated the definition of papal infallibility. C. was the reputed author of a treatise to prove that the earth did not move. He disapproved of the clergy taking an active

part in politics. He estab. numerous schools, convents, hospitals, and churches in Ireland (Mater Misericordie hospital).

Cullen, William (1712-90), distinguished Scottish physician, b. at Hamilton, Lanarkshire. He attracted great attention by the novelty of his views on the functions of the nervous system, and his pathological doctrine of excitement and collapse. His chief works are *Synopsis Nosologiae Methodicae* (1769); *First Lines of the Practice of Physic* (1777); and *Treatise on Materia Medica* (1789). See life by J. Thomson, 1832.

Cullen, bor. of Scotland, in the co. of Banff, situated on C. Bay. Since 1200 it has been a royal bor. There is a fine market-place, with a council chamber, assembly hall, and court-room. It possesses a good harbour. Fish is exported. Pop. 1700.

Cullera, Sp. tn. in the prov. of Valencia and stands on the R. Jucar. It is also a fort. tn. and the remains of its walls are still standing. Pop. 15,000.

Cullinan, mining tn. of Transvaal, S. Africa, E. of Pretoria. Pop. 15,000.

Cullinan Diamond, largest known diamond, found in the Premier Mine, E. of Pretoria, Transvaal, in Jan. 1905, and called after Thomas C., the chairman of the company owning the mine. Uncut, its weight was about 3030 carats, three times heavier than that of any other known one. The gem measured about $4\frac{1}{2}$ by $2\frac{1}{2}$ by 2 in., and its girth was $8\frac{1}{2}$ to $11\frac{1}{2}$ in. It had fine cleavage planes, as though only a portion of a larger crystal. The colour for so large a stone is exceptionally pure. It has been valued at from \$2,500,000 to \$5,000,000.

Culloden, moor (known to Highlanders as Drummossie Moor) in Inverness-shire, Scotland, famed for a victory gained in 1746 by the duke of Cumberland over the Pretender, Charles Stuart. The victors cruelly massacred the wounded Highlanders. This was the last battle fought in Britain; a cairn and green mounds mark the soldiers' burial-places.

Cullompton, tn. of Devonshire, England, on R. Culm, 12 m. from Exeter. It has an old church in the Eng. Perpendicular style, with a tower 100 ft. high. Pop. 2,900.

Culm (geology), rocks of upper carboniferous age occurring in Cornwall and Devon. They are merely barren coal-measures. In mining C. denotes an inferior grade of small steam coal or anthracite. In brewing Cs. are the rootlets which form on the cereals used after steeping and subsequently removed for use as cattle food or manure.

Culmination (Lat. *culmen*, the summit), astronomical term for the passage of a heavenly body when it crosses the meridian. There are two Cs. in the course of twenty-four hours, the upper, above the pole, and the lower, below the pole.

Culpeper, John, see COLPEPER.

Culpeper (Culpepper), Nicholas (1616-1654), Eng. medical writer and astrologer, a supporter of the Parliamentarians and religious sectaries. In 1640 he set up as astrologer and physician in Red Lion

Street, Spitalfields. *A Physicall Directory* (1649), his unauthorised trans. of their *Pharmacopoeia*, excited great indignation among the College of Physicians against C. for infringing the monopolies of medical writers. Other works are *Semeiastica Uranica* (1651) and *The English Physician* (1652, 1653). The latter has been reissued in various eds. ever since, the last in 1932. C.'s works were ed. by G. A. Gordon in 1802. See L. Powys, *Thirteen Worthies*, 1923.

Culpeper, Sir Thomas, the Elder (1578-1662), Eng. writer, author of *Tract against the High Rule of Usury* (1621).

Culpeper, Sir Thomas, the Younger, (1626-97), Eng. writer on usury, son of Sir Thomas (d. 1662).

Culross, par. and burgh of Scotland in the co. of Fifeshire. It stands on the N. side of the frith of Forth, and lies W.N.W. of Edinburgh. It contains the ruins of a Cistercian abbey which was founded in the thirteenth century. Its former deep submarine coal-mines are exhausted. Pop. 4000.

Cultivated Plants. It is almost impossible to say when plants were first cultivated, but it is known that millet, rice, and figs are among some of the very oldest of our present-day products. Investigation has proved the original habitat of most plants, and the wild form has in many cases ceased to exist. At the present day cultivation has reached such a pitch that the form in which we know the plant varies very much from the original wild one, and there are various devices known for the further improvement or development of the plant in question. Some plants are cultivated for their seeds, such as all cereals, peas, beans, mustard, etc.; others for their leaves, such as cabbage of all kinds, spinach, tobacco, tea, water-cress, etc.; others again for their flowers, such as auliflowers, cloves, etc.; some for their young shoots and stems, as asparagus and rhubarb; and some again for their fruits, such as plums, oranges, gooseberries, all kinds of nuts, cucumber, tomatoes, etc.; and last but not least is that large class of plants of great service to man cultivated for their roots and tubers. There are many useful products from certain plants which are much cultivated for various purposes apart from edible uses, e.g. starch, vegetable acids such as citric and oxalic, gums, rubber, all the numerous narcotics, such as opium, morphia, etc.

Cultivation, or Tillage (Late Lat. *cultivare*, to cultivate, from Lat. *colere*, to till; O.E. *teolian*, *tilian*; Gothic *tilon*, to strive for), denotes the process of cultivating soil for the purpose of agriculture. It consists of digging, ploughing, harrowing, rolling, spading, hoeing, etc., all of which operations tend to increase the goodness of the soil, and thus to increase its fertility. For surface tillage harrows, weeders, and other agrie. instruments of the fork and spade variety are used. Pulverisation of the soil is essential for the root growth of plants. Breaking up the soil and removing stones and impedimentary matter facilitates

the free development of roots and also the free passage of earth and air which increases the health of the plants. Deep ploughing is generally done in the autumn, as during the winter months the changes in temp. affect the soil, causing expansion or contraction according as the weather is wet or frosty. Pulverisation also favours the activity of beneficial organisms in the soil (see NITRIFICATION), and promotes the solution of mineral matter. It also brings about the destruction of weeds and insects which are injurious to the development of cultivated plants. 'Cultivators' are the best instruments for destroying weeds. They are also called grubbers, and a special variety is called scarifier. The cultivator consists of a triangular or rectangular iron frame, with fixed teeth or tines. Harrows and rollers are useful in separating the weeds from the soil. When the weeds have been removed the earth is well ploughed, and manure dug deep into the soil. Sub-tillage, or sub-soiling, forms a very important part of C. Below the surface clay, chalk, and gravel are found, and it is the aim of the agriculturist slowly to cultivate his soil to a deeper depth. Heavy clay soil needs constant turning over, and manure should be worked into it. Inter-tillage is carried on while the soil is still occupied by a crop. Trenching and draining also form an important part of C. See AGRICULTURAL MACHINERY; AGRICULTURE; PLOUGHS AND PLOUGHING.

Culverin (Fr. *coulervine*; more remotely Lat. *colubra*, snake), term applied loosely to any small gun in the early days of firearms. In the sixteenth century it meant the heaviest gun in ordinary use, throwing a 15-pound shot. It was so called from its serpent-shaped handle. Culver and whole C. (as distinguished from demi-C., a smaller piece of ordnance) were variations of the name.

Culverwell, Charles, see WYNDHAM, SIR CHARLES.

Cumae, ant. city on the coast of Campania, Italy, W. of Naples. According to Strabo it was the earliest of all Gk. colonies either in Italy or Sicily, although 1050 B.C. is probably too early a date for its foundation. It rapidly became the wealthiest and most prosperous city in this part of Italy, planted colonies at Zancle (Messina), Puteoli, and Neapolis, and extended the influence of Gk. civilisation all over S. Italy. From 700 to 500 B.C. C. was at the height of its power, but by 474 B.C. it was compelled to invoke the aid of Hiero, tyrant of Syracuse, to crush the fleet of its enemies, the Etruscans. In 473 B.C. C. was taken by the Samnites, and in 350 B.C. fell into the hands of the Romans, and became a Rom. municipium and colony. In the Hannibalic wars C., in the hands of Sempronius Gracchus, resisted a Carthaginian siege (Livy, xxiii.). Under the Rom. emperors C. fell into decay, although Cicero chose to live there. It was garrisoned by the Goths, and was the last place in Italy to hold out against Narses. C. was the residence of the abbi who gave

the Sibylline Books to Rome. Very few remains of the city still exist.

Cumana, tn. of Venezuela, cap. of the state of Sucre, situated about a mile from the coast, near the mouth of the gulf of Cariaco. It claims to be the oldest European city in America. The climate is hot, and earthquakes often occur. There is a trade in sugar, cacao, tobacco, etc. It was completely destroyed by an earthquake in Jan. 1929. Pop. 19,000.

Cumania, see KUMANIA.

Cumberland, Ernest Augustus, Duke of, and King of Hanover (1771-1851), fifth son of George III. At the first battle of Tournay, 1794, he lost the sight of his right eye and was severely wounded in the arm, but this did not prevent his remaining in the army. Subsequently he held high military commands in England, and he went again on active service during the last two years of the Napoleonic wars. On May 31, 1810, he was found wounded in his bed, and his valet, Sellis, dead in an adjoining room. The coroner's jury accepted the view that Sellis had tried to murder his master and had then committed suicide; but public opinion believed that the duke had murdered Sellis. It was also rumoured that the duke was guilty of other crimes. On the accession of Victoria, he became king of Hanover. Hated in Great Britain, he was beloved in Hanover, over which he reigned wisely and well.

Cumberland, Richard (1632-1718), Eng. moral philosopher and bishop of Peterborough, b. in London, and educated at St. Paul's School and Magdalene College, Cambridge. Among his college friends was Samuel Pepys. C. won a great reputation for learning both in science and philosophy and for his simple and upright life and fulfilment of his episcopal duties. Among his works is *De Legibus Naturæ disquisitio in qua Elementa Philosophiæ Hobbianæ refutantur* (1672, trans. 1727), written in reply to Hobbes and upholding the utilitarian principle of the public good being the end of morality. He dedicated his *Essay on Jewish Weights and Measures* (1686) to his old friend Pepys. See *Pepys's Diary*.

Cumberland, Richard (1732-1811), Eng. dramatist, was educated at Westminster and Cambridge. On leaving the univ. he became private secretary to Lord Halifax at the Board of Trade, the office being almost a sinecure. He wrote more than fifty plays, the first to be produced being *The Summer's Tale* in 1765, and the most successful *The West Indian*, brought out by Garrick six years later at Covent Garden. C. now moved in literary circles, but his sensitiveness to criticism prevented him ever becoming popular therein. He quarrelled with Goldsmith and Sheridan, whom he had offended, caricatured him as Sir Fretful Plagiary in the *Critic*. He wrote many poems and prose works between 1754 and 1811, of which *Memoirs of Richard Cumberland Written by Himself* (1806-7) is best known. He was buried in Westminster

Abbey. See S. T. Williams, *Richard Cumberland: his Life and Dramatic Works* (with bibliography), 1917.

Cumberland, William Augustus, Duke of (1721-65) was the third son of George II., then Prince of Wales. Educated for the navy, the duke for a while served under Adm. Sir John Norris; but when he grew up his tastes inclined to the army, and he was allowed to follow his bent. Promotion for a prince of the blood was rapid in those days, and at the age of thirty-one he was gazetted major-general. Two years later he was appointed to the command of the allied forces in the Netherlands, with Konigsberg as his

Lake Dist., shared with the neighbouring co. of Westmorland. Here are the Cumbrian Mts., with the peaks of Scafell (Scafell Pike, 3210 ft., the highest point in England), Scawfell (the lower summit, but the finer peak, 3162 ft.), Skiddaw (3058 ft.), and Helvellyn (3118 ft.); and the lakes of Derwentwater with the falls of Lodore, Bassenthwaite, Ennerdale, Buttermere, and Crummock Water, Westwater, Thirlmere, and, on the Westmorland border, Ullswater. From the Lake Dist. a network of valleys runs N., W., and S. to a wide coastal plain, and the valley of the Eden divides it from the Pennine Chain, which reaches its



CRUMMOCK WATER, CUMBERLAND

On the left is Mellbreak (1688 ft.); on the right Grassmoor (2787 ft.).

adviser; and in 1745 the office of captain-general of the Brit. land forces at home and in the field, dormant since Marlborough's day, was revived in his favour. He took an active part against the rising of '45, and after the battle of Culloden in 1746 treated the rebels with such severity that he was nicknamed Butcher. His methods, though drastic, were not injudicious, for, in part at least owing to his proceedings, the Stuarts did not engineer another insurrection in the kingdom. Subsequently the duke held, from time to time, high command abroad, but he never achieved any signal success in the field. See lives by A. Henderson, 1766; R. Rolt, 1767, and E. Charters (2 vols.), 1913 and 1920.

Cumberland, the most N.W. co. of England, bounded on the W. by the Irish Sea and Solway Firth, on the N. by Roxburgh and Dumfries, on the S. by Westmorland and Lancashire, and on the E. by Northumberland and Durham. The greater part of its surface is mountainous. The S.W. half is taken up by the beautiful

highest point in this co. in Cross Fell (2930 ft.). The N.W. portion, bordering on the Solway Firth, is low and flat. The chief rivs. of C. are the Eden, the Liddel, the Esk, the Derwent, and the Uddon. Considerable tracts of land and mts. are owned by the National Trust.

The climate is mild except on the uplands during the winter. The rainfall of the Lake Dist. is the heaviest in England. In the mountainous dists. the soil is black, peaty earth, but in the plains dry loam predominates, and produces large quantities of oats and turnips, and a little wheat and barley. In the hill pastures cattle and sheep are reared, the Herdwick variety of the latter being peculiar to the co. C. is rich in minerals, coal being worked extensively round Whitehaven, Maryport, and Workington, with much accompanying iron ore, which is also found in the S. near Millom. Gypsum, zinc, and lead are mined, and limestone, granite, and slate are quarried. A little silver is still found, but the copper mines near Keswick and the plumbago works

near Borrowdale have been closed. There are various manufs. in the co., woollens, cottons, earthenware, glass, biscuits at Carlisle, pencil-mills at Keswick, and shipbuilding at Whitehaven. Large quantities of salmon are caught in the Solway. The chief tns. are Carlisle (the cap.), Cockermouth, Whitehaven, Workington, Maryport, Wigton, Penrith, and Keswick. C. is part of the diocese of Carlisle, and is divided into four parl. divs.: N., Penrith and Cockermouth, Whitehaven, and Workington, each returning one member. The municipal bors. are Carlisle, Whitehaven, and Workington. After the withdrawal of the Romans, who left many relics, coins, altars, and inscriptions, C. became part of the Brit. kingdom of Strathclyde. In 875 the first reference is made to the kingdom of the Cumbri, and in 945 it was ceded by Edmund to Malcolm of Scotland. Henceforward, until the union of the crowns, it was a constant cause of quarrel between the two nations, now in the hands of one, now of the other. The small landowners in the co., whose lands have been in their families for centuries, are known as 'statesmen,' but most of such small estates have now been absorbed by the large landowners. Area 968,598 ac. Pop. 273,000.

Cumberland: 1. Co. seat of Allegheny co., Maryland, U.S.A., situated on the R. Potomac, N.W. of Baltimore, in mt. scenery. It stands on sev. railways, among them the Baltimore and Ohio Railway, and is also situated on the Chesapeake and Ohio Canal. Chief industries: iron and steel, glass, railway cars and locomotives, artificial silk, etc. It exports large quantities of coal. There is a large dyeing and cleaning estab. Pop. 39,400. A fort was built here in 1754. 2. Tn. in the co. of Providence, Rhode Is., U.S.A. It includes ten vils., which manuf. cotton and silk goods. Pop. 10,600.

'Cumberland,' Brit. cruiser (class A.C., 9800 tons displacement), completed in 1904; and a Kent class Brit. cruiser of the same name, completed in 1928, a 10,000-ton ship carrying eight 8-in. and four 4-in. anti-aircraft guns. Ships of this name figured largely in the eighteenth and nineteenth centuries, as at the capture of Calcutta, 1757. A Federal war vessel of this name, commanded by Lt. Morris, was sunk by the Confederate ram *Merrimac* in Hampton Roads, March 1862.

Cumberland Gap, a pass in the C. Mts., is situated in the S.W. of Virginia, U.S.A. Its chief importance during the time of the Civil war lay in its position.

Cumberland Island, in Baffin Land. It is in reality not quite an is., and is situated in the Arctic regions of America, while Davis Strait lies to the N.E.

Cumberland Lodge, in Windsor Park, was formerly the residence of the ranger. It was enlarged by Wm. Augustus, duke of Cumberland (q.v.), who resided there.

Cumberland Peninsula, deeply indented peninsula of Baffin Is., in the Arctic N.W. tern. of Canada with C. sound on the S. ...

Cumberland Presbyterians, Amer. religious sect formed at the beginning of the nineteenth century in Cumberland co., Kentucky. It was the outcome of a great 'revival,' when there was a dearth of fully trained preachers to meet the public demand, and men without the usual high standard of theological and educational training demanded by Presbyterianism were ordained. In 1816 the C. Synod adopted a confession of faith based on the Westminster Confession with certain additions and amendments, and this was again revised at a later date. The doctrines of predestination and unconditional election were eliminated, and the universality of the atonement was accepted. In 1826 a college was estab. in Princeton, Kentucky, but was transferred to Lebanon in Tennessee in 1842, becoming the C. Univ. The coloured C. Presbyterian Church was an offshoot of the original C. Church, establishing a separate identity in 1869 at the time when the slavery question was rife. Its estab. was inevitable as the C. P. had their strongest following in the S. States.

Cumberland River, U.S.A., trib. of the Ohio, rises in the C. Mts. in Kentucky. Its course assumes a S.W. direction and then a N.W. one till it joins the Ohio. This riv., which is navigable as far as Nashville, is over 600 m. in length.

Cumberland Valley, in Pennsylvania, U.S.A., a fertile piece of land watered by the tribs. of the Susquehanna R., its position being between that riv. and Maryland. It is a continuation of the Shenandoah valley.

Cumbernauld, par. in the co. of Dumbarton, Scotland. It lies to the N.E. of Glasgow. Pop. 5000.

Cumbræ, Great and Little, are two is. in the firth of Clyde, Scotland. They belong to the co. of Bute. The tn. of Millport is on the G. C. and on the smaller one is built a lighthouse. Pop. 6000.

Cumbre, La, known also as *Uspallata*, pass in the Andes S.W. of Mt. Aconcagua. It is over 12,000 ft. high, and the tunnel through which the railway is built is about 3 m. in length.

Cumbrin Mountains, group of mts. in England, stretching from Fell Top, Cumberland, to the state quarries in Lancashire, about 40 m. from N. to S. Scafell Pike (3210 ft.) is the highest point.

Cumbrin Rocks, forming the C. Mts. of England, consist in the N. and E. of lower carboniferous (shale and grit) rocks, with limestone beds. In the S. are volcanic ashbeds and lavas. A few species of Graptolites and Trilobites have been found, but fossils are rare.

Cumene, or Isopropyl Benzene, liquid obtained by distilling cuminic acid with soda-lime, or by boiling benzene and isopropyl chloride in the presence of anhydrous aluminium chloride. It has an agreeable odour and, on oxidation, gives benzoic acid.

Cumiana, It. tn. in the prov. of Turin (Piedmont). Pop. 6000.

Cumin, or Cummin, fruit of a plant

which grows wild near the Nile and is cultivated in S. Europe and India. The fruit, improperly called seeds, is greyish-yellow, strongly aromatic, and the taste is bitter and disagreeable. These C. seeds were formerly used in ordinary medicine, but they are now employed only in veterinary practice except when forming an ingredient of curry powders. C. is mentioned in the Bible.

Cumming, see COMYN.

Cummings, Bruce Frederick, see BARRELLION, W. N. P.

Cummins, Maria Susanna (1827-66), Amer. novelist, b. at Salem, Massachusetts. Her chief works are *The Lamplighter* (1854); *Mabel Vaughan* (1857); *El Fureidis* (1860); and *Haunted Hearts* (1864).

of sailing vessels which plied between Boston and Bermuda. His original idea was a regular service of steamships which could do the journey across the Atlantic in less time than the boats which usually carried the mails. Accordingly when he came to England in 1838 he obtained the help of Mr. George Burns and Mr. David MacIver and founded what is now known as the C. Line—at the same time obtaining a contract from the gov. to carry the mails. The first boat of this line was the *Britannia*. Larger and swifter vessels were added from time to time—the largest since the 1830's being the *Umbria* and *Etruria*, speed about 19 knots, the *Campania* and *Lucania* with a speed of 21-22 knots, and the *Lusitania* and *Mauretania*, the latter until recent



THE 'QUEEN ELIZABETH I'

Cunard White Star

Cumnock: 1. Old C. is a Scottish tn. in the co. of Ayr. It is situated to the E. of Ayr on Lugar Water and possesses coal-mines. Alexander Peden the covenantor is buried here. Pop. 3500. 2. New C. lies to the S.E. of Old C. Pop. 2000.

Cumnor, vii. in Berkshire, England, 3½ m. W.S.W. of Oxford. Here was C. Hall, the house where Amy Robsart, the ill-fated wife of Robert Dudley, earl of Leicester, was murdered. It is described by Scott in *Kenilworth*, but has since been destroyed. Part of the church dates from the thirteenth century, and contains a statue of Queen Elizabeth, said to have been erected at the hall by Leicester. Pop. 1400.

Cumyn, see COMYN.

Cunard, Sir Samuel (1787-1865), shipowner, b. at Halifax, Nova Scotia, where he began life as a merchant. In 1838 he left for England, and in the following year founded the Brit. and N. Amer. Royal Mail Steam Packet Company. He afterwards contracted to carry the mails between England and America. In 1850 C. was made a baronet. See CUNARD STEAMSHIP LINE.

Cunard Steamship Line, founded by Sir Samuel C. (q.v.), who was the owner

years the fastest liner in the world, with an average speed of 26 knots (see below). All the vessels to-day in the fleet are fitted with wireless telegraphy, and a newspaper, known as the *Ocean Times*, is also printed on board. Early in the present century the company, in agreement with the Brit. Gov., decided to build two leviathan liners—the *Lusitania* and *Mauretania*—in order to wrest honours of size and speed from all competitors. The *Mauretania* broke all records in 1909 by crossing from Queenstown to New York in 4 days 10 hrs. 41 mins. at an average speed of 28-06 knots. In 1924 she crossed from New York to Cherbourg in 5 days 1 hr. 49 mins., but in 1929 the *Bremen*, a newly built Ger. vessel of the Norddeutscher Lloyd line, did the latter voyage (outward) in 4 days 18 hrs. 17 min. The *Aquitania* (1914), with a tonnage of 46,000, has also many speedy crossings to her credit. During the First World War 56 per cent of the company's tonnage, including the *Lusitania*, was lost through enemy action, but a big shipbuilding programme resulted in the replacement and extension of services until in 1930 the C. fleet consisted of eighteen big liners ranging from 14,000 to 33,000 tons, the gross tonnage of C. and Associated Lines' ships being

nearly 1,000,000. In the same year two huge new liners were projected, of size, speed, and luxury unsurpassed.

The first of the new vessels, built with the assistance of state credits, was the *Queen Mary* (gross tonnage 81,235, length 1019 ft., breadth 118·6 ft., speed 28·5 knots) completed in 1936. In May of that year she crossed the Atlantic on her maiden voyage in 4½ days. The sister ship *Queen Elizabeth*—like the *Queen Mary* a quadruple screw vessel—was completed in 1940 (gross tonnage 85,000; 14 decks, including 724-ft. promenade; length 1030 ft., breadth 118 ft., accommodation for 2200 passengers; main machinery is geared steam turbines developing a service horse power of 158,000 and driving four propellers). In 1940 she made a secret maiden voyage to New York for an indefinite stay and thereafter sailed as a troop transport. On reconversion after the war this £9,000,000 ship made her first post-war voyage as a luxury liner in Oct. 1946. New cargo liners and combined passenger and cargo ships representing 76,000 tons gross are being added to the company's fleet to replace war losses, including the *Caronia* (34,000 tons) launched in 1947. All three vessels were built by John Brown & Company of Clydebank.

In 1934 the N. Atlantic fleets of the C. S. L. and the White Star Line Company (Oceanic Steam Navigation Company) were amalgamated under the name of C. White Star Ltd.

Cunas, race of Amer. Indians living in the isthmus of Darien and in the alluvial plains of the Atrato. They call themselves Talé, and are connected with the San Blas Indians. They are of medium stature and have a profusion of long black hair.

Cunaxa, anct. tn. about 60 m. from Babylon. It was here that a battle was fought between Artaxerxes and Cyrus the Younger, in which Cyrus was killed—the story of the battle being related by Xenophon.

Cundigurri, or **Khandgiri**, name of a vil. 15 m. S. of Cuttack, in the Puri dist. of Orissa, India. Near by are two sandstone hills, Khandgiri and Udayagiri, commanding on opposite sides a narrow gorge in the jungle. The numberless caves undermining these hills are thought to conceal many memorials of primitive Buddhism.

Cunégo, Domenico (1727–94), celebrated It. engraver, b. at Verona. He studied as a painter under Francesco Ferrari, but deserted painting for engraving and settled in Rome, 1761. He engraved twenty-two plates for Gavin Hamilton's *Scota Italica*, among which were some of the frescoes of Michelangelo in the Sistine Chapel, 'La Fornarina' of Raphael, and also his 'Galatea.'

Cuneiform Writing is probably the earliest known system of writing. The name cuneiform, from Lat. *cuneus*, wedge, was suggested about 250 years ago by Thomas Hyde, regius prof. of Heb. at the univ. of Oxford, and is given to anct. scripts in use among the peoples of

Mesopotamia and neighbouring countries. The characters of these scripts were formed of combinations of strokes having the shape of a wedge, cone, or nail, and called, by the anct. users, fingers. This peculiar form of the characters was not a device deliberately chosen, but came about more or less by accident. The chief writing material of Mesopotamia was clay of a particularly fine but coherent kind, which was found in the alluvial soil of that country. The early users of this clay for the purpose of writing soon discovered that one could draw the characters in the moist clay much better and more quickly by impressing them than by scratching. As curves and fine lines could not be impressed satisfactorily, C. W. consists of short, straight, vertical, horizontal, or oblique strokes or angles. Naturally the strokes impressed were thick on the top and on the left, thus giving birth to a series of wedge-shaped characters. These were impressed, line by line, with a special instrument, now known as stylus, and called by the users tablet-reed. Indeed normally it was made of reed, although sometimes the wooden stylus was employed. During the long period of over 3000 years for which C. W. remained in use the characters naturally underwent considerable transformation. Indeed at the beginning the writing was not cuneiform at all. The characters may have been purely pictorial, the picture symbols representing various objects, animate and inanimate. However, even the earliest extant written tablets (from Uruk IV., see below) do not represent the primitive stage in which all the signs in use were fully pictorial. It is therefore disputed whether such a stage ever existed, the Uruk IV. tablets representing instead the actual first essays at writing *ex nihilo*, and already containing many schematic signs, so far conventionalised that the objects depicted cannot be identified at all. At a later stage the script became linear; curved lines began to disappear and to be replaced by straight lines set at angles to one another. Finally the strokes were converted into wedges, and the objects originally depicted, except in the rarest cases, became nothing but unrecognisable symbols.

The exact date of the invention of the C. W. is unknown. The aforementioned earliest extant written tablets, numbering about 570, were discovered in the fourth or lowest archaeological stratum of Warkah (known as Uruk IV.), the biblical Erech, and generally are assigned to the middle of the fourth millennium B.C. It is also uncertain what people invented this writing, but it is generally believed that they were the Sumerians, the non-Semitic creators of the most anct. civilisation of Mesopotamia.

The development of the C. W. was parallel in some respects with that of the Egyptian, Chinese, and other 'ideographic' scripts. In other respects the C. W. was perhaps unparalleled; so, for instance, during the transition period from pictograph to cuneiform signs, perhaps about 3200 B.C., there was a complete change of

the direction of the signs. The reason of this change is thus explained. The earliest tablets were small enough to be held in the palm of the left hand, and the characters were impressed vertically. When the tablet increased in size it could not be so held; it was then laid on a table at right angles to the body. The signs were written as before, but when read in the turned position of the tablet the symbols appeared to be lying on their back, i.e. turned at an angle of 90°. Afterwards the symbols were ever drawn in this position. In inscriptions on stone or metal the old position of the signs persisted for a few centuries more, but in the course of time the practice came into line with that followed on clay tablets. As in the Egyptian or Chinese scripts, the range of expression of cuneiform signs was very wide. In the first place the signs represented concrete objects: at a second stage the use of the signs depicting concrete objects was extended to express concrete concepts and abstract ideas related in meaning; for instance, the solar disk also came to indicate the ideas of day and time. The characters thus were ideographic word-signs or ideograms. At a later stage, introducing the phonetic principle, the C. W. became a *rebus-script*; many signs became phonograms, i.e. signs representing sounds. Without any regard to their original meaning they also were taken to represent syllables, which could be used in writing any word, either consisting of that syllable or of which that syllable was a component element. This device was particularly used to indicate grammatical relations (such as pronouns, adverbs, prepositions), prefixes and affixes, foreign words, place-names and personal names, and so forth. On the whole, the Sumerian cuneiform script mainly consisted of word-signs, while the Mesopotamian Semitic peoples mainly employed the syllabic value of the characters (without, however, eliminating the use of old ideographs as word-signs). The highest achievement of the users of C. W. was to isolate the vowels and represent them by distinct signs, but there was never shown any tendency towards an alphabetic system, including the representation of the consonants by distinct signs. There were two exceptions to this general rule, the cuneiform alphabetic writing of Ugarit and the Early Persian script. The former was a script (of the sixteenth to thirteenth centuries B.C.) connected only in the external form of the characters with the cuneiform system of writing; the latter was a semi-alphabetic and semi-syllabic script, also including four ideograms, and was perhaps suggested by the Aramaic alphabet.

The employment of the cuneiform characters, both with their ideographic and phonetic values, on the one hand, and their adaptation to the needs of languages belonging to different linguistic groups, had the result that many signs became *polyphones*, i.e. representing many sounds; others were *homophones*, having similar phonetic values, but representing entirely different objects. In order to remove

ambiguities and confusion in the interpretation of the texts, two devices were introduced: (1) *determinatives*, that is signs which were not pronounced and were placed before or after the ideograms to be determined; these determinative signs defined the meaning of the ideograms by denoting the class to which the concerned ideogram belonged, such as deities, men and women, animals, plants, countries, numbers, plural, and so forth; (2) the use of syllabic signs as phonetic complements, consisting of a consonant and a vowel, which were placed after a polyphone sign ending with the same consonant.

The hundreds of thousands of clay tablets extant, written in cuneiform characters, are couched in the following languages: Sumerian, Babylonian, Assyrian, Cassite, Elamite, Early Armenian (also known as Chaldean or Urartu), Hittite, Mitannian, Hurrian, and Canaanite. Their importance for the knowledge of the anc. world is paramount. They reflect the classical age of Babylonian literature and science of Hammurabi (eighteenth or seventeenth century B.C.) or the period when C. W. and the Accadian language were the lingua franca of the anc. world (middle of the second millennium B.C.); they are the remains of the rich libraries of the Assyrian kings (ninth to seventh centuries B.C.). The decipherment of the cuneiform script was the achievement of the nineteenth century. Maj. (later Maj.-Gen. Sir) Henry C. Rawlinson, who in 1846 pub. a trans. of the Early Persian part of the famous Behistūn (or Bisitūn) trilingual inscription, may be considered as the father of modern decipherment of the cuneiform scripts.

See G. R. Barton, *The Origin and Development of Babylonian Writing*, 1913; E. A. Wallis Budge, *The Rise and Progress of Assyriology*, 1925; M. Rutten, *Éléments d'Accadien*, 1937; G. Ryckmans, *Grammaire accadienne*, 1938; D. Diringer, *The Alphabet, a Key to the History of Mankind*, (pp. 41-57), 1948; and G. R. Driver, *Semitic Writing from Pictograph to Alphabet*, 1948.

Cuneo, Riv., some 720 m. long, in Angola, Portuguese W. Africa. It rises on the tableland of Benguela, and descends in a series of rapids and reaches the sea with a westerly course, its mouth being blocked by sandbanks. The C. drains an area of 42,800 sq. m.

Cuneo, or Coni: 1. Prov. of N. Italy belonging to Piedmont, situated between the Cottian Alps, the Maritime Alps, and the R. Po. Its products are mainly agric., corn, hemp, flax. Its manufs. are linen, silk, and marble goods. Area 2868 sq. m. Pop. 609,000. 2. Cap. of the above, an episcopal see of Piedmont, 55 m. S. of Turin by rail. It was once strongly fortified, and was the scene of sev. sieges on account of its strategic importance. It has a fine cathedral, lately restored, and a Franciscan church of the twelfth century, now used as a military storehouse. The chief manufs. are silk, cotton, and paper. Pop. of com. 35,400.

Cunha, Nuno da (1487-1539), Portuguese commander, distinguished himself by the capture, in 1529, of Mombasa, now in Brit. E. Africa. In the same year he superseded Sampeyo as viceroy of the Indies, and on his way out took Ormus, one of the E. Indies, which had rebelled and massacred the Portuguese, and dispatched the traitor Xaref, who had encouraged the revolt, to Lisbon. Without firing a shot C. succeeded in gaining possession of Diu, a stronghold on the gulf of Cambay, which it was necessary to secure for the safety of his country's settlements. In 1537 he was bravely defending Diu with a garrison of 700 against the assaults of Soliman, the Turkish admiral, when he was recalled home.

Cunha, Tristão da (1460-1510), Portuguese navigator and discoverer, was in 1504 nominated the first viceroy of Portuguese India, but a temporary attack of blindness prevented him from filling the post. Two years later King Emmanuel entrusted C. with a fleet of sixteen vessels, five of which formed a squadron under the command of Alphonsó D'Albuquerque. With this detachment C. discovered a group of three volcanic is. in the S. Atlantic, which still bear his name, visited Madagascar and Mozambique, defeated the Arabs in Brava, and took possession of Sokotra (1507). His object was to gain control of all the trade with the E., and as an aid to this he built a fort at Coco (Tamarida). In 1514 the king chose him as envoy to Pope Leo X., who received homage from C. for the new Portuguese lands.

Cunningham, Sir Alan Gordon (b. 1887), Brit. soldier, son of Prof. D. J. C. and brother of Sir Andrew Browne C. Educated at Cheltenham and Royal Military Academy, Woolwich. Entered army, 1906. Served on W. front in First World War, and five times mentioned in dispatches. Instructor, machine-gun school, 1928-31. Commander Royal Artillery, 1st Div., 1937-38. Major-general, 1938. Commander-in-chief of the victorious imperial troops which conquered It. E. Africa, 1940-41 (see ITALIAN EAST AFRICA, SECOND WORLD WAR CAMPAIGN IN (1941)). Commanded imperial troops which advanced into Cyrenaica, Nov. 1941; replaced by Maj.-Gen. Ritchie the same month after armoured actions at Sidi Rezegh (see AFRICA, NORTH, SECOND WORLD WAR CAMPAIGN IN). Commandant, Staff College, Camberley, 1942. Lieutenant-general, 1943. General officer commanding N. Ireland, 1943-44. General officer commanding in chief E. Command, 1944-45. High commissioner and commander-in-chief for Palestine and high commissioner for Transjordan, 1945.

Cunningham, Sir Alexander (1814-93), authority on Indian archaeology, was a son of the poet, Allan C. Many years of his life were spent in the Brit. Army in India, and his various writings on Indian statistics and architecture are the fruits of a wide experience. His *Archeological Survey of India* appeared in 1871.

Cunningham, Allan (1784-1842), Scot-

tish poet and biographer, was b. near Dalswinton, Dumfriesshire. He was apprenticed to his uncle, a builder, but in 1810 he went to London and wrote for the press. In the same year appeared *Remains of Nithsdale and Galloway Song*, pub. by Cromek, most of which were composed by C. In 1814 he became secretary to Sir Francis Chantrey, the sculptor, to whom he rendered many valuable services, offering him suggestions and inducing Sir Walter Scott and Southey to sit to Chantrey. In 1822 he pub. his drama *Sir Marmaduke Marvell*, and in the same year *Traditional Tales of the English and Scottish Peasantry*. In 1825 he ed. *The Songs of Scotland, Ancient and Modern*, and in 1829-33 he pub. *Lives of the Most Eminent British Painters, Sculptors, and Architects*, in six vols., for the Family Library. His epic poem in twelve parts, *The Maid of Elrar*, appeared in 1833. In 1834 he pub. an admirably re-ed. ed. of Burns's works in eight vols., with a biographical preface containing many new and interesting facts of the poet's life; this was followed in 1836 by *The Life and Correspondence of Robert Burns*. Just before his death C. had a stroke of paralysis, the effects of which are obvious in *The Life of Sir David Wilkie*, pub. in 1843, after his death. C.'s songs were for the most part in the manner of Burns, and although they were much inferior to his model's, still retain some popularity. See D. Hogg, *The Life of Allan Cunningham*, 1875.

Cunningham of Hyndhope, Sir Andrew Browne Cunningham, first Baron (b. 1883), Brit. admiral, son of Prof. D. J. C. and brother of Sir Alan Gordon C. (q.v.). Educated at Edinburgh Academy, Stubbington House, Farnham, and H.M.S. *Britannia*. Entered R.N. 1898 as a midshipman on cruiser *Doris*, which operated off S. Africa during the Boer war. Before he was thirty he was in command of his own ship, the 900-ton *Scorpion*. Won distinction in the Gallipoli campaign, 1915. Commanded a destroyer in the Dover patrol, and was then transferred as a rear-admiral to command of destroyer fleet in the Mediterranean, 1933-36. In 1937 he was made vice-admiral in charge of the Mediterranean battle cruiser squadron, and second in command of the Mediterranean fleet. Lord commissioner of the admiralty and deputy chief naval staff, 1938-39. Famous for his brilliant aggressive strategy in the Second World War, in which he began his war service as commander of the first cruiser squadron in the Mediterranean and then, from Oct. 1939, in the North Sea, where his ships took part in the N. patrol, blockading Germany. His flagship, *Devonshire*, brought King Haakon and the Norwegian Gov. to Britain, after playing a gallant part in the ill-starred campaign in Norway. The Fr. Foreign Legion, whose forces he landed there, and subsequently took far S. to Duala after the ill-planned venture at Dakar (q.v.), bestowed a much-valued honour for his leadership. Under his direct command were the naval

forces, both surface vessels and fleet air arm, which crippled Italy's fleet at Taranto, the battle of Calabria, and the battle of Cape Matapan (q.v., and see also NAVAL OPERATIONS IN SECOND WORLD WAR). Made admiral G.C.B., 1911. Was in general command of the immense convoy of more than 800 vessels which landed the Brit.-Amer. expeditionary forces on the Algerian and Moroccan coasts on Nov. 8, 1942. In the matter of transporting, supplying, and maintaining the enormous invasion forces in many parts of the world he proved a great Fourth Sea Lord. Head of the Brit. Admiralty delegation to the U.S.A., 1942. Promoted admiral of the fleet, Jan. 1943. As commander-in-chief Levant he mounted a great part of the assault forces for the attack on Sicily at a time when the R.N. in the E. Mediterranean was heavily engaged in the Dodecanese operations. It was he too who planned and commanded the—from a naval standpoint—brilliantly successful Anzio landing and the still greater undertaking—the assault on the S. of France in Aug. 1944. After the Second World War he became First Sea Lord and chief of the naval staff at the Admiralty. C. has had a spectacular career, and it was well said of him by Mr. A. V. Alexander that he was 'the greatest sea captain since Nelson.'

Cunningham, John (1819-93), Scottish church historian, whose fine scholarship renders his *Church History of Scotland* (1859-82) an invaluable book of reference. In 1868 appeared his *History of the Quakers*.

Cunningham, Peter (1816-69), publisher and author, was a son of Allan C., the poet. As publisher he brought out Dr. Johnson's *Lives of the most Eminent English Poets* (1854), whilst his chief original works were *Inigo Jones* (1848) and a memoir of J. M. Turner (1852). Though condensed and voluminous, this last is flavoured with diverting anecdotes and gives many quaint pictures of the manners of different times. He also ed. his father's *The Life of Sir David Walker* (1843) and *Poems and Songs* (1847).

Cunningham, William (1805-61), Scottish theologian. During the ten years' conflict which preceded the disruption and the foundation of the Free Church in 1843, C. threw himself heart and soul into the controversy, giving the whole force of a fine intellect and the full moral support of a splendid character to the Non-intrusionist principles he had adopted. In 1847 he was appointed principal of New College, Edinburgh, where he had already lectured since 1843 with fervid interest and withal surprising impartiality on church hist. and divinity. A founder of the Evangelical Alliance, he was in 1859 moderator of the General Assembly.

Cunningham, William (1849-1919), theologian and political economist, b. at Edinburgh, was educated at Edinburgh Academy and Cambridge. In 1899 he gave a course on economic hist. at Harvard Univ., and was chosen Hulsean lecturer in 1885. Became archdeacon of Ely, 1907. Among his valuable

textbooks and hist. may be cited *The Growth of English Industry and Commerce* (1882, 1925-29); *English Industrial History* (1895); *Use and Abuse of Money* (1891); *Western Civilisation* (1894); *Modern Civilisation* (1896); *Rise and Decline of Free Trade* (1904); *Growth of English Industry and Commerce in Modern Times* (1907); *Cure of Souls* (1908); *Christianity and Social Questions* (1910); *Case against Free Trade* (1911); *Efficiency in the Church of England* (1912); *Christianity and Economic Science* (1914); *English Influence on the United States* (1916); *Progress of Capitalism in England* (1916); and *Increase of True Religion* (1917).

Cunninghame Graham, Robert Bontine (1852-1936), writer and Socialist agitator. Scots laird and Sp. grandee. He was educated at Harrow, and represented N. Lanarkshire in Parliament from 1886 to 1892. He spent much of his youth cattle-farming in the Argentine, and was a fine horseman. Closely associated with Keir Hardie and John Burns in the early days of the Labour party. His pub. include *Aurora la Cujini* (1898); *Mogreb el Arkesa: a Journey in Morocco* (1898); *A Vanished Arcadia* (1901); *Success* (1902); *Life of Hernando de Soto* (1903); *His People* (1906); *Charity* (1912); *Brought Forward* (1916); *Cartagena* (in Colombia) and *Banks of the Sinú* (1920); *Doughty Deeds* (1925); *Pédro de Valdivia, Conqueror of Chile* (1926); *Jose Antonio Piez, 1790-1873* (1920); *The Horses of the Conquest* (1920); *Writ in Sand* (1932); *Portrait of a Dictator* (1933); and *Mirages* (1936). See L. Chaundy, *A Bibliography of the First Editions of the Works of Robert Bontine Cunningham Graham*.

Cunninghamia, genus of coniferous trees of the Pinaceae family. Found in China and other countries in the Far E. The Chinese species (*C. sinensis*) is grown as an ornamental tree; but the Indo-Chinese variety (*C. gensis* or *Sa Mou*, as it is called in the vernacular) is noted for the provision of coffin wood for Chinese funerals.

Cunoniaceae, order of trees or shrubs inhabiting S. Africa, S. America, and sometimes the E. Indies. Little is known of their properties except that the bark is often very astringent and used for tanning purposes. The fruit is generally a capsule with albuminous seeds. The chief genus is *Cunona*.

Cuntis, tu. with thermal sulphur springs, 15 m. N. of Pentevedra, in the dist. of Cádiz in Galicia, Spain. Pop. 8000.

Cuoco, Vincent, see *Coco*.

Cup and Ring Marks are found on sepulchral monuments of the stone and bronze ages, on small, loose stones, rock faces, and earth-embedded boulders round the sites of primitive communities and habitations in almost every part of Europe, and also in many quarters of America, although the rings are rarely found on this continent. In Scandinavia they are still regarded with superstitious awe, and most archaeologists agree in tracing a close connection between these cups and circles

and the fetishes and ceremonial symbolism of our remote forefathers. Frequently they occur in the neighbourhood of the megalithic remains of India and Europe, and in Prussia they are found, curiously enough, on church faces. It seems, further, that they are not unlike the symbols of Siva engraved in modern temples. The cups are circular cavities, sometimes grouped in hundreds, with diameters varying from 1 to 4 in., and with their rims usually quite independent, though rarely these touch. It is suggested that these cavities arose from the Indian practice of cracking hickory nuts in some such hollow by striking them with a stone, whilst it is quite possible that the larger basins in rocks were used as mortars. The rings, up to six in number, flow concentrically round the cups, though they are not always found with them. Where the circles are incomplete a tiny passage usually radiates from the cup in the centre to the outermost ring. Achinabreac, in Argyllshire, Scotland, affords excellent illustrations of these curious sculptures.

Cupar, or **Cupar-Fife**, royal, municipal, and police bor. and the co. tn. of Fife, Scotland, on the R. Eden, 10 m. S.W. of St. Andrews, 30 m. N.N.E. of Edinburgh. Its chief industry is linen-weaving, and there is a beet sugar factory and a large oom market. The chief buildings are the tn. hall, corn exchange, and Duncan Institute. The anct. seat of the Macduffs, earl of Fife, is now a school. In front of it in 1552 there took place one of the earliest performances of Sir David Lyndsay's *And Satyr of the Three Estates*. Pop. 4500.

Cupellation, process for the separation of precious metals from lead, in which the alloy is heated on a cupel (hearth of porous, refractory material like Portland cement or marl) in air, whereby the lead is oxidised and removed as litharge, and the precious metal left behind. *See also* ASSAYING.

Cupid (Lat. *cupido*, desire), Rom. name for the god of love (Gk. *Ἔρως*), also Amor. He is generally represented as a winged, nude child, joyous and mischievous, with a bow and arrows, and sometimes a torch and quiver, and blindfolded. The arrows he aimed at the hearts both of men and of the gods of Olympus to kindle them into the flame of love. He is generally represented as the son of Venus by Mars, the god of war, but sometimes by Jupiter or Mercury. For the story of the love of C. and Psyche, *see* PSYCHE, also Andrew Lang's beautiful version of the Apuleian myth which denotes the striving of the soul after perfection.

Cupola (It., from Lat. *cupula*, small vault or cask), term in architecture for a spherical vault or concave ceiling—the dome of a building. The form is of Byzantine origin and was adopted by the Romans. It was much used in eccles. buildings, where it was lit by windows of coloured or painted glass. In domestic architecture the C. is generally of glass.

Cupping, almost obsolete remedial measure designed to relieve inflammation

by blood-letting. In dry C. the blood is withdrawn from deep-seated regions to the surface. In wet C. the blood is withdrawn from the body through a number of incisions made by a special instrument. The apparatus used is a glass cup with rounded or roughened edges, designed to adhere to the skin. The glass is heated by being warmed in a flame or by burning spirit within it. It is applied while hot and the subsequent cooling causes a contraction of the contained air which so diminishes the surface pressure that the blood is quickly drawn from the lower vessels to the skin.

Cupreine, alkaloid in the bark of *Cinchona cuprea*, a tree of S. America. From the same bark quinine is also obtained, the C. being separated from the mixture of the two alkaloids by treatment with ammonia and boiling ether.

Cupressus, *see* CYPRRESS.

Cura, or **Ciudad de Cura**, tn. 56 m. S.W. by W. of Caracas, in the N. of the prov. of Aragua in Venezuela, S. America. The tn. was almost destroyed by an earthquake in 1900.

Curaçao, or **Curaçoes**, most important of the Dutch W. Indian Is. It lies 40 m. from the N. coast of Venezuela, is 40 m. long by 10 m. wide, and has a total area of 210 sq. m. The soil is largely unproductive; sugar, aloes, tobacco, and divi-divi are cultivated in some fertile tracts, and salt, phosphates, cattle, and straw hats are exported. C. liqueur was originally made here from a peculiar variety of orange found on the is. Willemstad (pop. 39,600), on the harbour of St. Anna, is the cap. not only of C., but of the neighbouring is. of Aruba (pop. 39,100); Bonaire (5500); St. Eustatius (970); Saba (1100); and the S. part of St. Martin (1600); the N. part belongs to France. C. was discovered by Spain in 1527, but has been held by the Dutch since 1634, except for a short interval when it was in the hands of Great Britain. The official language is Dutch, but Sp., Eng., and a lingua franca, Papiamentu, are also spoken. Pop. of the whole colony 136,700 (C. is. 88,300); of the Dutch W. Indies, 57,000. *See* K. Martin, *West-Indische Skizzen*, 1887; de Veer, *La Colonie de Curaçao*, 1899.

Curaçoes, esteemed liqueur, manufactured chiefly in Holland. In dry C. there is 39 per cent. in the sweet variety 36 per cent. of alcohol. Jamaica rum is sometimes added to improve the flavour, but the latter depends mostly on the dried peel of the C. orange, *Citrus aurantium Curassaviensis*. A portion of the peel, after maceration in water, is distilled with diluted spirit, the rest of the peel being softened in a part of the distillate so obtained. After 48 hrs. the infusion strained off from this latter part of the distillate is mixed with that part of the first distillate hitherto unused. The resulting liqueur may be sweetened.

Curare, **Curara**, or **Urari**, vegetable extract obtained from *Paullinia curare* and members of the Strychnos family. It is used by the natives of S. America as an arrow poison. Its active principle is

curarin, and it has been used hypodermically in hydrophobia and tetanus. It is a dangerous drug, causing paralysis of the motor nerves and eventually death through paralysis of the respiratory organs.

Curassow, or *Craiinae*, sub-family of the galliform birds, is common to the forests of tropical America. The species are handsome game-birds, and often easily domesticated. *Craz alector*, the crested C., bears on its head a curious crest of feathers movable at will of their owner.

word is so used in the Church of England Prayer Book: 'All bishops and curates and congregations committed to their charge'; a curacy is the office held by a C. The word is now restricted in general use to an unbeneficed parochial Church of England clergyman, who is in reality an assistant C. Cs. in earlier times were generally deputies for some incumbent who never visited his par., now they are ministers employed by the rector or vicar of a par. to assist in parochial work generally, and in taking the service at the par. church.



P. H. Hiss: Netherlands Information Bureau

CURAÇAO: THE BEACH AND TOWN OF WEST POINT

Curate (from the Lat. *curare*, to care for), word which has become considerably altered in meaning with the passing of old customs. In former times benefices were sometimes handed over to religious houses who, in their turn, might transfer them to laymen. Such members of the laity were styled impropiators and were obliged to apply for a licence of the ordinary to allow a clerk in holy orders to take over the cure or par. in question. These clerks were called perpetual Cs., because the impropiators could not remove them, but by an Act of Parliament of 1868 all perpetual Cs. were allowed to use the title of vicar, even although they were given no vicarage nor tithes. On the Continent (*cf.* Fr. *curé*, It. *curato*, etc.) the word corresponding to C. is still used of the par. priest. C. is, in its etymological sense, 'one who has the care of souls,' and the

The bishop of the diocese, or an ordinary having episcopal jurisdiction, licences and admits the C. to his par., and assesses the amount of his salary. If a C. is not inducted to his curacy in due course he is liable to receive six months' notice from his vicar. The incumbent in a par. where the tithes are impropriated and no vicarage has ever been endowed is called a perpetual C.; in such a case he is not removable, and the impropiators are under the necessity of maintaining him. Where new pars. are formed in a dist. such incumbents are now called vicars.

Curator (Lat. *curator*, one who has charge of a thing—a guardian), in Rom. law the guardian or caretaker of a person over age who for some reason—for instance, if he be a spendthrift or of unsound mind—is unable to take charge of his own affairs. In civil law a C. is the

guardian or caretaker of the property of a minor. Under the Rom. Empire the title was given to those who occupied public official positions of trust. In modern times the name is generally given to the caretaker of a museum or public gallery, but it is still retained with something of its old significance at the univs.

Curb, term used in masonry to describe any fence or wall, designed to keep a mass of earth in its place. It is applied to various enclosing borders, being originally limited, as the word itself suggests (curb from Lat. *curvus*, crooked) to the framework or border of something circular. Thus it is still used of the framing round the top of a brewer's copper, of the cylindrical ring of iron or wood forming the foundation of a brick shaft, and of the wall or coaming round the top of a well. But its most common application is to the stone or other durable material placed edgewise along a sidewalk to separate it from the road, and to form a finish to the path or pavement.

Curb (in horses), see under HORSE (DISEASES).

Curel, **Carlo Maria** (1809-91), It. theological writer, became a priest of the Order of Jesuits in 1837. At Naples, where he had a cure, and where also he was rector of the schools and visited the prisons, he came into contact with Gioberti and other advanced religious thinkers, and in 1847 wrote a spirited reply to Gioberti's *Il Genio moderno*. In 1877 Leo XIII. expelled him from his Order in consequence of a pamphlet in which he advocated the reconciliation of the papacy with the people. He was to some extent reconciled; but his two books *La Nuova Italia* (1881) and *Il Vaticano Regio* (1883) were, upon pub., placed on the Index. Towards the end of his life he retracted again.

Curcuma, genus of Zingiberaceae. *C. angustifolia* is a native of the forests of India and *C. leucorrhiza* grows in the forests of Bahar. From the tubers of both species E. Indian arrowroot is obtained. *C. longa*, the common turmeric, is cultivated all over India, and also very largely in China; the Chinese sort is most esteemed for its superior richness in colouring matter. The rhizome of this plant is dried and then ground, when it yields the yellow dye known as turmeric. *C. Zedoaria*, the broad-leaved turmeric, has aromatic tubers used by the Hindus as a stimulating condiment, as a medicine, and as a perfume. Colic, cramp, and torpor are some of the diseases it alleviates in the E.

Curel, **François**, **Vicomte de** (1854-1928), Fr. dramatist, was educated as a civil engineer at the École Centrale. But he early turned to literature, and his first accepted play was *La Figurante* (1896). *La Nouvelle Idole* (1899), in which C. presents the eternal conflict between faith and reason, is probably his most popular play, but *Le Repas du lion* (1898) and *La Fille sauvage* (1902) are finer. The latter is a symbolical picture of the religious evolution of humanity; the former deals with the struggle, within an individual,

between progressive and conservative instincts. Other plays are *Les Fossiles* (1892) and *Le Coup d'aile* (1906). In 1914 he issued an ed. of his plays with a preface to each. He became a member of the Academy in 1918. He produced two plays after the war: *Terre inhumaine* (1923) and *La Viveuse et le Moribond* (1926). C. was passionately fond of hunting, and solitude. See P. Blanchart, *François de Curel et son œuvre*, 1926.

Curepipe, favourite and fashionable residential quarter, connected by rail with Port Louis, and situated at an elevation of some 1850 ft. in the interior of the is. of Mauritius. Pop. 28,000.

Cures, bp. of Numa, was a Sabine city, 25 m. from Rome, on the l. b. of the Tiber. It was probably destroyed by the Lombards in A.D. 589, but the site remains, namely a hill with two peaks, which were crowned formerly by the citadel and necropolis respectively. It was from C. so the story goes, that Titus Tatius led to the Quirinal the Sabines, with whom the Romans in time coalesced to form the Quirites.

Curetes, protectors of Zeus and Rhea, his mother, on the is. of Crete, whither they had fled from the wrath of Cronus, the father. In historical times they were regarded as gods, and their worship was celebrated in Greece with Pyrrhic dances.

Curstus, tribe of S. Amer. Indians who dwell peaceably in vills, each under a chief. They live in thatched round huts with tall conical roofs in the country bounded by the Rs. Vaupés and Japura of N.W. Brazil.

Curfew (Fr. *couvre-feu*). The custom of ringing a bell at sunset in summer and at eight o'clock in winter to warn all householders to extinguish their lights and fires was introduced into England from the Continent by William the Conqueror. It was not a tyrannical decree, but was a caution against leaving fires burning at a time when all houses were built of wood. The formal practice of ringing a bell at a stated hour is still continued in some dists. It is still resorted to in periods of civil unrest as, for example, in Palestine during the racial feuds between the Jews and Arabs; and in war-time to restrict or suppress nocturnal movements of civil pops.

Curia Muria Islands, see KURIA MURIA.

Curia Regia, or **Aula Regia**, king's council, estab. at the Norman Conquest. It was at first much the same as the committee of the *commune concilium*, known as the permanent council or *concilium ordinarium*. The C. R. gradually, however, assumed a distinct position from this council or committee owing to the continuity of its existence—whence its alternative name, continual council—and to its members being available for consultation at any moment, instead of at only three stated periods in the year, as in the case of the national council. By degrees the term C. R. or *aula regia* began to be used to denote the king's council in its capacity of a supreme court of justice with the king at its head, and in the reign of Henry I. appear traces of

a definite organisation and staff. The C. R., which at this time always followed the king, was occupied at first more especially with financial business, in which capacity it was called the Exchequer (*q.v.*). Its members were the great officers of the household, such as the constable, chamberlain, steward, marshal, and butler, and such officials as the justiciar and chancellor and treasurer, who were appointed by the king to help carry on the work of government. In its judicial capacity the C. R. acted as a court of appeal from the local courts and as a court of first instance in cases in which the powerful tenants-in-chief were concerned. The C. R. also was in close communication with the local courts by means of its travelling justices who, in Henry I.'s reign, began to make circuits of the country for the purposes of finance and justice. In 1178 the increased business of the C. R. had caused the number of judges to become so large that the king appointed five of them to sit regularly *in banco* to hear all complaints and to transact all the business which subsequently fell to the three courts of common law, while at the same time the appellate jurisdiction was transferred to the *concilium ordinarium*. This limited body of judges was the origin of the courts of king's bench and common pleas. The system was slightly modified in 1179. The C. R. still continued in theory, though not in practice, to transact its business in the presence of the king and continued to follow him, to the great inconvenience of all concerned and was shortly after broken up into the three courts of common law, namely the court of exchequer, court of common pleas, and court of king's bench.

Curia Romana, name used to denote the collective judicial and administrative institutions by means of which the pope carries on the general government of the church. It is also used in a secondary sense, to mean either the persons who form part of the general government of the Church or the Holy See itself. There is no separation of powers in the C. R., each dept., besides performing the business entrusted to it, having a share in the legislative, judicial, and administrative power. All depts. derive their powers directly from the pope, and exercise them in the papal name, while the pope is responsible officially for all the acts of the C. R. The decisions of some depts. must in nearly every case be referred to the pope for his ratification, but there is not the same necessity for ratification in others. Acts performed directly by departmental heads are generally called Acts of the Holy See, while those of the pope himself are designated Pontifical Acts, *e.g.* bulls, briefs (*q.v.*), and encyclicals. In all cases however, the disciplinary authority is the same, though Acts which concern individuals have not the force of general law.

The component parts of the C. R. are (1) the tribunal and offices, and (2) the permanent commissions of cardinals, known as the Rom. Congregations. The former have been in existence for cen-

turies, but the latter, though of much later institution, have taken precedence, and now perform a great many of the transactions formerly in the jurisdiction of the former. The Congregations consist of the highest dignitaries of the church, and are practically subdivisions of the Consistory, in which latter council the entire Sacred College takes part. The old machinery of the eccles. administration of the tribunals and offices still exists, but the prelates who once were at the heads of these depts. have been replaced by cardinals. The tribunals are (1) the *forum internum*, the Penitentiary, (2) the *Rota (forum externum)*, and (3) the papal Signatura, the two latter being for judicial matters.

The offices are (1) the Chancery which sends out papal bulls, (2) the Apostolic Dataria, which transact matters of grace, like nominations to benefices; (3) the Apostolic Chamber, which administers the property of the Holy See; (4) the palatine secretaries, the chief of which, the cardinal secretary of state, deals with the political affairs of the church; (5) the pontifical family, of domestic prelates of the household, one of whom presides over the arrangement of audiences, while another revises books pub. at Rome; and (6) the pontifical chapel, or papal court for religious worship.

Curicó: 1. central prov. of Chile, stretching from Argentina to the Pacific, and separating the provs. of Talca and Colchagua. Except for salt deposits on the coast the other minerals, copper, silver, etc., are as yet undeveloped. Irrigation has greatly assisted agriculture, and wheat, Indian corn, and the vine are widely cultivated. Area 2214 sq. m. Pop. 75,000. 2. Tn. situated on the Mataquito R., 114 m. S. of Santiago by the Chilean Central line. Pop. 18,000.

Curie, Marie (Marya Skłodowska) (1867-1934), physicist and chemist, was b. in Warsaw, daughter of Prof. Skłodowska. Educated at the Lyceum of Warsaw; went to Paris and studied with Pierre C. (*q.v.*), whom she married in 1895. It was she who carried out the many experiments necessary to obtain the atomic weight of radium, the element they had jointly discovered. She became licentiate in physics and mathematics, then doctor of science, and succeeded her late husband as prof. of physics and director of the physical laboratory at the Sorbonne in 1906, being the first woman prof. to be appointed to that univ. Besides the honours gained in common with her husband, she obtained the medal of the Royal Society of Arts (England) in 1910, the Nobel prize for chem. in 1911, and shared with her husband and Henri Becquerel the Nobel prize for physics. She visited the U.S.A., and her admirers there raised a fund with which they purchased a considerable portion of radium so that she could more easily carry on her investigations. The Marie Curie Skłodowska Institute of Radiology was opened in Warsaw in 1932. Pubs.: *Recherches sur la propriété magnétique des sels trempés*; *Recherches sur les substances radioactives* (1903); *Traité de*

radioactivité (1910); *Les Progrès de la physique Moléculaire* (1914); *La Radio-logie de la guerre* (1921); *Radioactivité et phénomènes connexes* (1923); *L'Isotopie et les éléments isotopes* (1924); and *Pierre Curie* (1924). See Eve Curie, *Madame Curie*. 1935.



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MADAME CURIE

Curie, Pierre (1859-1906), Fr. physicist, was educated at the Sorbonne, Paris, where he eventually became *Licencié* ès Sciences Physiques, and *Docteur ès Sciences*, and where also from 1900 he held the chair of physics. In time he was chosen as *chef des travaux* at the school of physics and chem. in Paris, and in 1895 was appointed prof. at the same institution. In his earlier years he carried on some valuable research into piezo-electricity and the magnetic properties exercised by bodies in different degrees of heat. But his greatest service in the field of science was the discovery of two new elements, polonium and radium. Already, in 1896, Henri Becquerel had pub. his observations on the radioactivity of uranium—a property manifested in a still higher degree by the compound known as pitchblende. M. and Mme C. (see CURIE, MARIE)—for his wife took a full and equal share in the whole of C.'s laboratory work—immediately began to subject pitchblende to fractionation, hoping thereby to bring to light some hitherto unknown substance which must be radioactive to a still greater extent than uranium. Their hopes were fully realised, and resulted in the discovery of radium and its transformation product, polonium. In 1903 the Cs. received the Davy medal of the Royal Society and also half of the Nobel prize for physics, the other part being awarded to Becquerel. A year after his election to the Academy of Sciences (1905), C. was killed by a dray which ran over him. His investigations were regularly pub. in the *Journal of Physics*, *Annals of Physics and Chemistry*, and other scientific records.

Curio, Gaius Scribonius: 1. Rom. statesman who lived in the first century B.C.

Consul in 76, he prosecuted a successful war against the Thracians in his capacity of governor of Macedonia, and was the first Rom. to reach the Danube. 2. Son of the above, transferred his allegiance from Pompey to Caesar during his tribuneship of 59 B.C. After mustering troops for Caesar in Umbria and Etruria, he more than held his own against the Pompeians in Sicily (49), and was finally slain by Juba, the Numidian king, whilst crushing the Republican cause in Africa.

Curisches Hafl, see KURISCHES HAFF.

Curityba, or **Curitiba**, cap. of the state of Parana, Brazil. Situated on a pleasant plateau, 2916 ft. above the sea, it is watered by the Iguaçu, an affluent of the Parana, and is connected by rail with its seaport, Paranagua, 68 m. to the E. There is a univ. and a large Ger. colony. Its staple exports are maté or Paraguayan tea, beef, cereals, and tobacco. Pop. 117,000.

Curius Dentatus, Marcus, see DENTATUS.

Curlew, shore bird of the genus *Numenius*. It is found in all countries, and is remarkable for its very long and decurved bill, and its elongated legs. It breeds especially on moorlands, the nest being quite exposed. The plumage is pale brown in colour, with dark bars, the under and lower parts being mainly white. It is found on Brit. shores from autumn to spring, and feeds on insects, worms, and berries.

Curling, kind of bowls on ice which has been a popular Scottish sport during the last three centuries and which has now found a home in most parts of the world where the climate is favourable, especially Canada and Switzerland. The stone, which takes the place of the bowl, is a block of granite or whinstone rounded to the shape of a Dutch cheese and polished smooth. On the top is an iron handle by which the player grips it. The stone may be thrown in various ways, according to the direction in which the player wishes to send it. The weight varies from 35 to 40 lb., but 44 lb. is the maximum allowed. By giving it a rotary motion to a greater or less degree it may be made to go in more or less of a curve. The first thing done by the players is to prepare the rink. The ice is swept clean and two tees are constructed, 38 yds. apart, one at each end of the rink. With the tee as centre, a circle of 7 ft. radius is then drawn at each end. Behind each tee a line is drawn back from the tee to a distance of 4 ft., these being called the *central lines*. At the hinder extremity of the central lines *foot-scores* are drawn at right angles to them, 18 in. long, on the left hand on the central line as one faces the tee. With part of the foot-score as diameter and with their centres 6 in. from the central line, small circles 3 in. in radius are drawn. On these players must place their left feet when casting their stones. Those stones which are inside the tee circle and nearest to the tee count for the score, and a game consists of a number of 'heads' or 'ends', after each of which the players change ends. Seven yds. from each tee a wavy line is drawn, known as the hog-

score, and any stone which does not cross this is called a *hog* and removed from the rink. Midway between the tees a straight *middle* line is drawn. The rink having been prepared according to the above rules, each side chooses its captain or *skip*. A side generally consists of four players with two stones apiece, and the skip is an autocratic director, giving minute direction to the other players where they must send their stones. The leader is generally directed by his skip to send his stone straight towards the tee, but on no account to go beyond it. The skip of the opposing side may then direct his first player either to send down a shot to remove his adversary's stone, or to try to get his own stone nearer. The second and third players are similarly told exactly what to do. The skip generally plays last, though this is not obligatory, and he himself is directed by a player, generally the third, whom he has picked out for this purpose. As a rule when one good shot has been made it is customary for the following players to be directed to lay their stones as *guards* to protect this one. All the players are provided with brooms and a right judgment in 'sweeping' (sweeping) forms no small part of the skill of the game. The broom is used to sweep away any particles of ice or snow that seem likely to impede the progress of the stone, and is used only on the skip's orders. The player's party may sweep from the middle line to the tee, so long as they do not disturb either the running stone or any of those at rest. An umpire is generally chosen to settle disputed points. The rules for C. are made and issued by the Royal Caledonian C. Club. Much effort has been exerted to find the origin of the game, but it seems impossible finally to settle this point. The balance of opinion inclines to give it a Dutch or Flemish origin, but there are many references to the game in the early seventeenth-century Scottish records. Camden, in 1607, speaking of the Orkney Is., says, that they supply 'plenty of excellent stones for the game called curling.' The game at first bore a much closer resemblance to quoits than it at present does. It was for a long time known as *coiling* or *kuling*, and the old name still survives in many parts. At this time the stones were much smaller, weighing only a few pounds, and the impulse was given by the fingers, to receive which a small hole was made in the top of the stone. Then for a short time the stones were of enormous weight, 70 or 80 lb. each, and shaping was not carefully attended to. With an increase in the symmetry of the stones came a decrease in their size. In 1834 an attempt to revive the anct. sport was made by the Amateur C. Club of Scotland, attended with but little success. In 1838 the Grand Caledonian C. Club was formed on more professional lines, and this club, which took the title of Royal from Queen Victoria in 1842, extended the game to Canada and the U.S.A., where it is played under slightly different conditions. See J. Ramsay, *An Account of the Game of*

Curling, by a Member of the Duddingston Curling Club, 1811, 1882; J. Taylor, *The History of Curling, and Fifty Years of the Royal Caledonian Curling Club*, 1890; and J. Kerr and C. G. Tebbutt, *Skating and Curling*, 1894.

Curll, Edmund (1675-1747), notorious London bookseller, b. in London. He is responsible for the origin of the word Curlicue, having achieved a reputation for issuing obscene literature. He lived chiefly by piratical publishing, and Arbuthnot said of his biographies that they added a new terror to death. He quarrelled, in 1716, with Alexander Pope, the poet, in consequence of which Pope pilloried him in his work, the *Dunciad*.

Curly Coated Retriever, see RETRIEVER.

Currach, see CORACLE.

Curragh Incident, name by which that dramatic and unexpected gesture made at C. Camp by Gen. Hubert Gough and other officers under his command came to be known. On March 20, 1914, they tendered their resignations as a protest against the likelihood of being sent to enforce Home Rule upon N.E. Ulster. This action caused a political crisis of the first order. See also HOME RULE.

Curran, John Philpot (1750-1817), Irish judge and orator, won in 1769 a sizarship at Trinity College, Dublin. He was called to the Irish Bar in 1775, and in 1782 he was created king's counsel, and in the following year entered the Irish Parliament as member for Killebegan. A staunch supporter of Grattan, his fervid and sarcastic speech nevertheless failed to secure for him in the House that pre-eminence which he enjoyed in an Irish court. C. was a convinced Protestant, but when the oppressed Catholics of his country were goaded at length to open rebellion, he threw himself wholeheartedly into the defence of their leaders in the series of state trials which followed. Thus he exerted himself to save Archibald Rowan (1794), the Rev. Wm. Jackson (1795), Peter Finerty (1797), the brothers Sheares (1798), Napper Tandy (1800), and a host of other victims of gov. persecution. C.'s last years were darkened alike by the political outlook and by domestic troubles. The union, which he had prophesied would be 'the annihilation of Ireland,' was in the last degree abhorrent to him: his wife eloped with a clergyman, and Sarah, his daughter, d. in Sicily after the execution of her lover, Robert Emmet, who rebelled in 1803. From 1806 to 1814 C. served the Whig Gov. as master of the rolls in Ireland.

Currant, term applied properly to species of *Ribes*, a genus of Saxifragaceae which flourishes in N. lands and has four representatives in Britain. *R. rubrum* is the red C., a plant remarkable for the mixture of sweetness and acidity in its fruit and for the beauty of its semi-transparent red or yellow berries. *R. nigrum* is the black C., in the fruit of which a powerful and agreeable aromatic principle takes the place of acidity. *R. sanguineum*, the flowering C., is well known in Brit. shrubberies for its beautiful pendant racemes of flowers, which are white when

very young, and gradually become rose-coloured. The Cs. sold in grocer's shops are the dried berries of a small kind of grape which is cultivated chiefly in the Is. of the Mediterranean and in Corinth, the word C. being a corruption of the name of this In. Various plants of different genera and orders are named C.-trees and C.-bushes, but they bear no true resemblance to species of *Ribes*.

Currant Wine, inferior vintage made from a seedless variety of the *Vitis tinifera*, or grape-vine, which is cultivated chiefly in Zante, Cephalonia, and Ithaca, and near Patras in the Morea. The fruit is grown on the lower hills and in the valleys, the higher slopes being left for the cultivation of the grape-vine.

Currency (Money), that which is current or in circulation, as a medium of trade. The word is generally applied to coins and what is termed paper money, comprising bills issued by authority, and to bank-notes or notes issued by government. In the science of political economy it more properly connotes money in the sense of coin, bills of exchange, notes, or other paper substitutes, being no more than a means of economising the amount of coin or bullion in any country. Money in this more restricted sense may be defined as the means by which two persons who do not deal together mutually as producers and consumers are enabled to enter into transactions. Some common measure of value must necessarily be adopted as an essential part of the machinery of trade, or in the language of economists, for the purpose of facilitating exchanges. Various substances have been used in different countries to serve as money, e.g., the Chinese formerly used cubes of tea and ant. classic nations used cattle. But as the precious metals, gold and silver, and in a lesser degree copper, have been for long the universal substances selected for the purpose by reason of the possession of their qualities of intrinsic value, durability, susceptibility to div., and portability, it is unnecessary to consider any other kinds. The original meaning of the word coin was a wedge-shaped disk for stamping money. Etymologically, coin is a doublet of *coign*, from Lat. *cuneus*, wedge; the Fr. word means also 'stamp.' Neither the Bible nor Homer gives any evidence of the use of coins in very early times. Herodotus ascribes the invention of stamped money to the Lydians, and the *Parian Chronicle* to the Æginetans in the ninth century B.C. Numismatic research points to the silver coins of Ægina, stamped with a turtle, as the most ant. known, while those of Lydia probably come next, followed by the gold and silver Darics of the Persian Empire in the fifth century B.C. Metal was very early used as a medium of exchange, but was weighed out by scales. The monetary systems of most European nations can be traced back to the pound of silver, still represented in the Eng. pound. A few instances are known of coins of other than circular shape, but convenience and the prevention of the depreciation of the coin by clipping or shearing portions from the edges have

tended to the universality of the round metal disk. The integrity of the coin as regards weight is also protected by milled and raised edges, and by the inscriptions and designs on its surface; all of which make mutilation easily perceptible. The design, etc., stamped on coins are usually symbols of the authority by whom they are issued, and the lettering confirms this, and generally includes the date of issue of the coin. Among the numerous minor Grecian states, and in early medieval Europe, a tremendous number of coins were made, separate coinages being issued not only by individual nations, but also by cities and even by families (see also **TOKENS** and **TRADE TOKENS**). Such local coinage was valid only within a restricted area, and the gradual centralisation of power led to the adoption of certain standard coins for international circulation. In modern times the right to coin money is a state monopoly, and coins are issued of two kinds; standard, where the weight of metal is equivalent to the face value of the coin, and token, where the actual value of the metal is less than the face value of coin, the as in the case of copper coinage. This is a matter which involves financial problems of considerable importance and difficulty. Gold, silver, bronze, and nickel are the chief metals used for coins. In Great Britain the silver coins are for 6d., 1s., and 2s. 6d. Threepenny pieces are occasionally seen, but the present twelve-sided threepenny piece is a nickel-brass coin. The existing bronze coins are penny, halfpenny, and farthing. Gold coins have disappeared. Five-pound and two-pound gold coins are issued on special occasions; but the sovereign and half-sovereign were withdrawn from circulation since the early days of the First World War. The 5s. silver crown and the double florin have also been discontinued. In the Brit. Empire New Zealand uses the Brit. coinage. Australia, S. Africa, and Elre use the same units, but with their own designs. Canada has the dollar and various cent pieces, and India the rupee. In Sept. 1916 the Brit. Gov. announced that the existing silver coinage was to be replaced by one of cupro-nickel. The process of withdrawal is to be made over a period of years, and for some years both types of coin will circulate side by side. The reason for the withdrawal in the case of silver in Brit. coins was the world shortage of silver and the dearness of the metal. Further, Britain received about £75,000,000 worth of silver from America under Lease-Lend and that has to be repaid. In 1946 the price of silver was 4s. 7½d. an oz., compared with 2s. during the war. In 1920 the price of silver rose to such a height that the silver in a half-crown cost 3s. In those days our coins contained 92½ per cent of pure silver, but the gov. passed the Coinage Act of 1920, which reduced the silver content by nearly half. The old rich alloy, 92½ per cent, had been in use for 350 years. The coins that resulted from this reduction contained half silver and about half copper, and they turned red,

green, and yellow. Some years later, however, the Mint changed the alloy again and called in the earlier coins. All the pre-1920 coins were called in too, but it was not until 1938 that the withdrawal was practically complete. In 1946 there were double the number of silver coins in circulation that were in circulation in 1920. The nominal value of silver coin in circulation in 1946 was about £113,000,000, and it had an intrinsic value of about £49,000,000 against £21,500,000 with silver at 2s. or, in other words, the intrinsic value of a half-crown had risen from 6d. to 1s. 1½d. The total number of coins struck in 1945 was 398,371,607, of which 91,571,222 were for foreign and colonial govs. Numismatics, or the study of coins, is valuable from antiquarian, historical, chronological, and artistic points of view. Much of our knowledge of (i)k. and Rom. hist. and biography, and many of our ideas of the appearance of men and buildings, are due to the evidence afforded by the contemporary coinage, while many coins such as those of Syracuse, are of high artistic merit.

In addition to its function of acting as a medium of exchange, money performs the no less essential functions of serving as the measure of the value of all other substances and as a means for effecting credit (*q.v.*). An appreciation of the true use of money and, in Adam Smith's phrase, of its nature as merely 'a branch of the general stock,' has led to the rejection of the old fallacy that a country's wealth was in direct proportion to the amount of money in the country, a fallacy which resulted from a confusion of capital with money. The former policy of the laws and trade of Great Britain was to retain as much money as possible, and hence to discourage imports and encourage exports (*see* CAPITAL, CUSTOMS DUTIES, and FREE TRADE). As a general rule it may be said that the value of money, that is to say, its purchasing power, varies inversely as general prices (*Mill*). The complex industrial organism of a country cannot be properly carried on unless there is at any given time an adequate quantity of money in that country. What is the proportion which the circulating money of any country bears to the whole value of the ann. produce circulated by means of it, it is impossible to determine. The point is a controversial one, but as only a part, and frequently a small part, of the ann. produce is destined for the maintenance of industry, it must always bear a very considerable proportion to that part (*Adam Smith*). The problem appears in the opinion of modern economists not to be capable of an answer in exact figures, owing to the difficulty of deciding the causes which determine the value of money. The value of money is regulated by the same laws as those which determine the value of other mineral produce; hence the causes which determine that value are, though complicated, reducible to the law of supply and demand. 'Supply' of money means, according to *Mill*, the total amount of money in circulation at any

given time, and 'demand' for money the total quantity of goods offered for sale. But as *Mill* points out, the element or factor of supply is itself complicated by the varying rates of circulation, or what he terms the 'efficiency' of money. Furthermore, demand in this context is to be taken to indicate not so much the total quantity of commodities as the number of sales to which any particular article is subject before it ultimately gets to the hands of the consumer. The net result is that the value of money varies inversely as its total amount in circulation multiplied by its efficiency (*Cairnes*). As men economise to the fullest possible extent the machinery of production, so do they economise as far as they can the machinery of exchange, or money. If actual money in the primary signification of current coin passed on every mercantile transaction, the trouble and difficulties of the social organism would be enormously increased; in all probability it could not be carried on at all as at present constituted. In a word, some system of credit has to be adopted (*see* CREDIT), and as a corollary, civilised communities attain to the idea of what is known variously as paper money or representative money in the shape of bank-notes, promissory notes, and bills of exchange (which latter term legally comprises cheques). These paper instruments are therefore a substitute for money. In most modern countries that form of promissory note known as a bank-note is part of the ordinary C. Notes are made legal tender provided they are issued by the State or by a State bank. When once in circulation such notes discharge debts as completely as current coin, in spite of fluctuations in value; promissory notes issued by bankers may of course be refused as payment of a debt, and can only be circulated with the entire concurrence of those who receive them. Bank of England notes have now long been legal C. and tender, and under certain circumstances the notes of country banks may be treated as C. and payment. A bank must always give gold or Bank of England notes, on demand, in exchange for its own notes. These rules give rise to the assertion that in the United Kingdom there is a 'convertible paper C.' Where notes are not convertible into money on demand, they are what is called 'inconvertible C.' The danger of inconvertible paper C. is that there is no real limit to the issue, with the result that there may be a poor prospect of redeeming the notes, and such huge sums may therefore by their means be added to the C. as to exercise a prejudicial influence on the financial resources of a country and ultimately to injure the credit of a gov. Gold coins are valid tender up to any amount; silver coins not beyond 40s.; copper coins not over 1s. By a statute passed in the third year of William IV., Bank of England notes are legal tender for all sums above £5, if the notes are payable on demand to bearer. In the United Kingdom there is therefore no double or treble standard of value, although there are three kinds of metal used in coinage,

the silver and copper coinages being no more than subsidiary. Advocates of a double standard insist upon the relative value of gold and silver being fixed by international agreement; but the fallacies underlying this proposal, which is commonly known as bi-metalism, may be refuted by consideration of the effect of the cost of production of the precious metals.

The outbreak of the First World War in Aug. 1914 necessitated an early departure from the C. practice which had been established for years in Great Britain. On Aug. 6, 1914, an Act known as the Currency and Bank Notes Act was passed. This Act authorised the Treasury to issue C. notes of the value of £1 and 10s. These were to be legal tender for any amount, the holder of a C. note being entitled to obtain on demand at the Bank of England, London, payment of the note at its face value in legal tender gold coin. The Act also provided that postal orders were to be temporary legal tender for the payment of any amount and these were actually used as C. for a short period. The provision with regard to postal orders was revoked by proclamation as from Feb. 3, 1915. Another very important provision of the Act was the power given to the Bank of England and to any Irish or Scottish Bank to issue notes in excess of the limits fixed by the law. The proviso attaching to these excess issues was that they should be authorised by H.M. Treasury and subject to any conditions imposed by that authority. It is important to note that banks of issue were to be indemnified against liability on account of excess issue after Aug. 1, 1914, provided that such excess resulted from authority received from the Treasury. It is a noteworthy fact that for a very short period the Bank of England did exceed the issue limit of uncovered notes fixed by the Act of 1844. C. notes were obtainable by bankers from the Bank of England up to 20 per cent of their liability on deposit and current accounts. The first issue of C. notes by the Treasury was made on Aug. 7, 1914, and the value of outstanding issues grew rapidly until Aug. 4, 1920, when the figure against outstanding C. notes and C. note certificates was returned at £366,679,828. It should be stated here, perhaps, that the holder of C. note certificates is entitled to demand from the Bank of England, acting for the Treasury, the amount of C. notes stated thereon. The great utility of the C. note issue was made manifest during the period 1914-18 covered by the First World War, when the national finances had to be treated with marked care. The banks were able to meet continuous and increasing demands for C. by the public. The Bank of England was enabled to conserve the gold stocks in the country. Credit was extended and this led to inflation. The gov. found the issue of C. notes of the greatest use, inasmuch as it was provided with a loan of nearly £400,000,000 to help to carry on the war. In Jan. 1918 a committee known as the Cunliffe Com-

mittee was appointed under the chairmanship of Lord Cunliffe to consider the various problems which would arise in connection with C. and the foreign exchanges during the period of reconstruction. Among the prin. recommendations of this committee were that an early return should be made to the gold standard and that gov. borrowings should cease at the earliest possible moment. It was also advocated that an adequate sinking fund should be provided out of revenue, so that there might be a regular ann. reduction of capital liabilities. The important recommendation was made that in order to reduce the C. note issue the actual maximum fiduciary circulation in any year should become the legal maximum for the following year. The committee also recommended that the principle of the Bank Charter Act, 1844, should be maintained, namely, that there should be a fixed fiduciary issue beyond which notes should only be issued in exchange for gold. The Macmillan Committee on Finance and Industry, which was appointed in 1929, found, however, that the return to the gold standard had fallen short of expectations, and emphasised that the only purpose of a gold reserve was to meet deficits in international payments until equilibrium was restored. In 1931 there were heavy withdrawals of borrowed capital in a brief space of time, such withdrawals being met partly from gold and partly from foreign C. held by the Bank of England, and partly from credits secured from Paris and New York. In consequence the National Gov., which succeeded the Labour Gov. in that year, introduced a Bill to suspend the gold standard and the gold standard has never since been restored. The Monetary and Financial Commission of the World Economic Conference, 1933, resolved that it was in the interests of all that gold should be re-estab. as the international measure of exchange values, the time and parity being for each country to determine. It was realised that in modern conditions monetary gold was required not for internal circulation but as a reserve against central bank liabilities and, above all, to meet external demands for payments caused by disequilibrium on the foreign account. On Feb. 1, 1939, Sir John Simon, chancellor of the exchequer, introduced a Currency and Bank Notes Bill under which the Bank of England's gold reserve, which had theretofore been valued in the bank return at the statutory price of 85s. an ounce should in future be valued weekly at the current market price (about 148s.). Any excess of its total value over the total note issue was to be transferred to the Exchange Equalisation Fund, and, conversely, the fund would make good to the bank any deficiency.

U.S.A.—An attempt to provide a sound and uniform C. was made by the estab. of a U.S. bank in 1791, which was given up in 1811, and of a second in 1816, which was closed in 1832 owing to President Jackson's opposition. The

bimetallio standard (the 'dollar,' without decision as to whether it was to be of gold or silver, having been made the unit) caused speculation in gold and silver coin, and in 1834 the ratio of coinage was changed from 15:1 to 16:1. Between 1837 and 1844 sev. state banks collapsed and Federal credit was so impaired that payment for land was ordered to be made in specie. Some of the states repudiated their public debts. Radical experiments ensued. An independent U.S. treasury was estab. in 1846, and also a sub-treasury. Treasury notes were made receivable for public debts, and selected cities were named as centres of deposit for gov. funds. In 1861 a panic occurred, specie payments being suspended, and in 1862 secretary Chase issued legal tender notes, founded on specie support (greenbacks), though owing to the rise of prices and depreciation of notes specie payment of notes was later suspended. In 1863 the National Bank system was estab., a national C. was provided for, secured by U.S. bonds, the banks being allowed to issue C. up to 90 per cent of gov. bonds deposited. In 1869 occurred the gold panic of Sept. 24 due to the attempt of Jay Gould and others to corner the Amer. gold market. This was foiled when the gov. threw \$5,000,000 of gold into the market. The day of the break was known as Black Friday. In 1893, after a period of depression, a serious political agitation led by W. J. Bryan arose for the re-estab. of a bimetallio standard. In 1900 the Currency Act was passed, definitely making gold the standard, and creating more favourable conditions for national banks. The 1907 panic was followed in 1908 by the Aldrich Currency Bill, allowing banks to issue C. on security of other than gov. bonds. The Owen-Glass Bill in 1913 (the Federal Reserve Act), passed by Congress under the impulsion of President Wilson, was intended to replace the outworn system of the Civil war days. The Federal Reserve Banking system is under the control of a board of seven directors, including the secretary of the Treasury, the comptroller of the Treasury, and five members named by the President of the U.S.A. Instead of one central bank, there are twelve regional banks, located in important cities scattered all over the country. Banks holding state and not Federal charters may join, but are not compelled to do so. Each regional reserve bank is under control of nine directors, under orders from the central board of seven, whose headquarters are in Washington. Each regional bank is supplied with large gov. deposits and with its own very considerable reserves. At all times it can supply its member banks with all the money that is needed, especially in crop-moving time. These regional banks also issue paper money in the shape of Federal Reserve treasury notes which are legal tender. The object of President Wilson was to place the money power in the hands of the gov. itself and take it away from the Wall Street bankers, who had hitherto con-

trolled the money market, taking advantage of the business interests of the country by exacting high rates of interest. The system showed its great value when the U.S.A. entered the First World War and the gov. was compelled to borrow huge sums from the people. The great panic and business depression of the winter of 1929-30 which extended up to the time of President Roosevelt's election in March 1933, resulted from the huge stock speculation in which the Amer. public had indulged, by over-production of manufactured goods, and by general bad economic conditions throughout the world rather than through any inherent defects in the Federal Reserve Act. *See also MINT; MONEY; NUMISMATICS.*

Currency Bonds, gov. bonds of the U.S.A., which are so called because they form part of the circulatory system of exchange. This they do in virtue of their interchangeability with the notes of the national banks, as a security for which they are deposited by the gov. with the Treasury.

Currency, Foreign, *see* WEIGHTS AND MEASURES, *Table of Foreign Monies.*

Currents, *Oceanic*, *see* ARCTIC, ATLANTIC, INDIAN, and PACIFIC OCEANS; GULF STREAM.

Currie, Sir Donald (1825-1909), founder of the Castle Steamship Company, *b.* at Greenock. At the age of fourteen he entered a shipping office, and in 1844 joined the Cunard Steamship Company in Liverpool. The 'Castle' line, which he estab. in 1862, rapidly grew in importance, and in 1872 he started a line of steamers to Cape Town, thus breaking the monopoly held by the Union Steamship Company. These two companies were amalgamated in 1900 as the Union-Castle Mail Steamship Company, with Sir Donald as chairman.

Currie, Sir William Arthur (1875-1933), Canadian general, *b.* at Napperton, Ontario, Canada. He quickly came to the fore in the First World War, and proved himself an able administrator as well as general. He took the field in command of the 1st Canadian Div. in 1914, and then of the Canadian Corps in 1917. His many military decorations include the Legion of Honour, Grand Officier de l'Ordre de la Couronne de Belgique, the Fr. and Belgian Croix de Guerre and Amer. Distinguished Service Medal. Principal of McGill Univ. from 1920 until his death.

Curry, Indian dish, seasoned with C. powder or paste. C. is a concoction of pepper, ginger, turmeric, coriander, caraway, tamarind, and many spices.

Curse of Scotland, nine of diamonds, which resembles the coat of arms of the early Stair, who was connected with the massacre of Glencoe in 1692.

Cursor, L. Papius, distinguished Rom. general in the second Samnite war, was five times consul (B.C. 333-313), and twice dictator (325-309). He frequently defeated the Samnites, but his greatest victory over them was gained in his second dictatorship. Although a great general, he was not popular with the

soldiers on account of his severity. In his second consulship, 272, he brought the third Samnite war to a conclusion.

Cursor Mundi, fourteenth-century verse homily, purposing to give a hist. of the world from its creation to its ultimate destruction. The poem is based on Bible hist., but, in a very attractive manner, the author incorporates with the scriptural narrative any legendary story he may know, such as that of the *Three Trees*. He also owes probably something to Cædmon's *Genesis*, Grosseteste's *Castle of Love*, and to the works of Wace and of Isidore of Seville. See the ed. of Dr. Morris, pub. by the Early Eng. Text Society.

Curtain, term used in fortification with regard to the part of a rampart which connects one bastion with another. See **BASTION**.

Curtatone, com. of N. Italy, in Lombardy, 4 m. W. of Mantua. It was the scene of the defeat of the It. patriots by the Austrians on Aug. 29, 1848. Pop. 9000.

Curtea de Arges, tn. and episcopal see of Rumania, in Wallachia, on the R. Arges, a trib. of the Danube. The fine cathedral, dating from the sixteenth century, is of great interest. There are sev. fine churches, including one built in 1512 by Prince Neagoe in the Byzantine style. Pop. 6500.

Curtsey (also *Courtesy*). The right of a husband to enjoy for life, after his wife's death, the freehold lands of which his wife was solely *seised* (i.e. possessed) in her lifetime, provided such issue of the marriage was *b.* as might by possibility inherit as the heir of the wife, made the husband on the right accruing *tenant by the C. of England*. From the passing of the Married Women's Property Act, 1882, tenancy by the C. only attached to lands of which the wife dies intestate. Abolished in England in 1925.

Curtin, Andrew Gregg (1817-94), Amer. statesman, *b.* at Bellefonte, Pennsylvania; was secretary to the commonwealth of Pennsylvania, in 1855, and governor (Republican) 1860. During the Civil war he strongly supported Lincoln, and Pennsylvania, under C., furnished 390,000 men to the N. army.

Curtin, John (1885-1945), Australian statesman, *b.* at Creswick, Victoria, and educated in state schools. Began work as a printer's devil. From 1911 to 1915 he was secretary of the Timber Workers' Union. During the First World War he became secretary of the Anti-Conscription League, and, in that capacity, came into conflict with the law and was imprisoned. From 1927 to 1928 he was editor of the *West Australian Worker*. In 1928 he was elected to the House of Representatives for Fremantle, and held the seat (except from 1931 to 1934) till his death. In 1935 he was elected leader of the Federal Labour party in succession to Scullin. On Oct. 3, 1941, Fadden's administration, after being in office for only a month, fell on a vote of censure on the budget and C. was summoned by the governor-general to form a gov. When Japan

opened hostilities in 1941 C. confronted the gravest crisis in Australian hist. and turned to the U.S.A. for aid, writing in the *Melbourne Herald* that Australia looked to them 'free from any pangs as to traditional links or kinship with the United Kingdom.' In Feb. 1942 his Cabinet ordered for the defence of Australia the complete mobilisation of all the human and material resources of the country and, with Brit. consent, secured the repatriation of the Australian Imperial Force, entrusting the supreme direction of the war in the Australian zone to the Amer. general MacArthur.



Press Portrait Bureau
JOHN CURTIN

He himself assumed the title of defence minister. In Nov. 1942, he obtained the consent of his own party to negotiate for the service of the A.I.F. and the militia as a homogeneous army in the S.W. Pacific area. In Aug. 1943, after the Jap. threat to Australia had passed, he secured at the election a two-house victory for Labour with a working majority. In March 1944 he visited London to attend the prime ministers' conference and won a reputation there as a commanding and whole-hearted leader of the Australian people. He differed, however, from Mr. Mackenzie King in regard to his own suggestions for improved machinery of consultation within the empire. His health, however, began to deteriorate at the end of 1944 and he *d.* in July of the following year. C. had a simple strength and directness of character and utterance which helped him, as neither mere brilliance nor astuteness could have

helped him, to fill the position of national leader demanded by the exigencies of a desperate crisis in Australian hist. Hist. may justly hold of him that in her most fateful emergency he served his country with an entire fidelity and an ability which were no small factors in her victory and in winning recognition of Australia in the war councils of the Allies in Washington and London.

Curtis, Charles Gordon (b. 1860), Amer. inventor; b. in Boston, Massachusetts; son of George Ticknor C. For eight years a patent-lawyer. He organized the C. & C. Electric Motor Company, the first company to make electric fans and motors; also the C. Manufacturing Company, of which he was president. Inventor of the C. improved steam turbine, of which the land rights were sold to the General Electric Company, and which is used in the navies of U.S.A. and Great Britain. Member of the Society of Naval Architects and Marine Engineers.

Curtis, Cyrus Hermann Kotzschmar (1850-1933). Amer. publisher; b. in Portland, Maine, son of Cyrus L. C. Had a common school education in New England. When married, went in 1876 to Philadelphia; there pub. the *Tribune and Farmer*, and estab. the *Ladies' Home Journal*. Later he became head of the C. Publishing Company, and *The Country Gentleman* and *The Saturday Evening Post*, the latter of which had been founded in 1728 by Benjamin Franklin, became the property of his firm. In Jan. 1913 he acquired the *Philadelphia Public Ledger* (owned by A. S. Ochs from 1902 to 1912), and in Dec. 1923 *New York Evening Post*.

Curtis, George Ticknor (1812-94), Amer. lawyer and historian, b. in Watertown, Massachusetts; graduated at Harvard in 1832; admitted to the bar, 1836; practised in Worcester, Boston, New York, and Washington, appearing before the U.S. supreme court in the Dred Scott case. He wrote *A History . . . of the Constitution of the United States* (1854); republished with embellishments as *Constitutional History of the United States*, (1889-96); *Life of Daniel Webster* (1870), and other political biographies.

Curtis, George William (1824-92), Amer. man of letters, b. in Providence, Rhode Is. He began life as a clerk in New York, and after having spent over a year with the Brook Farm Community, W. Roxbury (1842) he travelled on the Continent and in Egypt and Syria. On his return to America in 1850, he pub. his travels, and soon acquired a reputation. He was appointed editor of *Fulham's Monthly* in 1852, and contributed the series 'The Editor's Easy Chair' to *Harper's Monthly* from 1853. In 1857 he became editor of *Harper's Weekly*, and contributed serially to many magazines. C. was well known as a lecturer and public speaker, and was a keen member of the anti-slavery movement. His chief pub. are *Nile Notes of a Hovoadji* (1851); *Lotus Eating* (1852); *Potiphar Papers* (1853); *Prue and I* (1856); *Eulogy on Wendel Phillips* (1884); and *Party and Patronage* (1890). His *Letters* to Dwight were pub. in 1898, and his

Orations and Addresses in 1893-94. See life by E. Cary, 1894.

Curtis, Sir Roger (1746-1816), Brit. admiral, b. at Downton in Wiltshire. He entered the navy in 1762, and as a lieutenant was sent out to Newfoundland in 1771. In 1771 he served on the flagship under Lord Howe, and in 1780 commanded the *Brilliant* at the siege of Gibraltar. He took part, under Howe, at the action of the 'glorious 1st of June', 1794, was sent home with the dispatches, and in July was raised to the rank of rear-admiral, and was created a baronet. In 1798 he joined Lord St. Vincent at Cadiz, and in the following year became commander-in-chief at the Cape of Good Hope. He was made admiral in 1804, commander-in-chief at Portsmouth in 1809 and G.C.B. in 1815.

Curtius (Quintus Curtius Rufus), Rom. historian who probably lived towards the end of the first century A.D. He wrote a hist. of Alexander the Great, *Historia Alexandri Magni*, in ten books, of which the first two and portions of others are lost. The first ed. was pub. about 1471 at Venice. There is an Eng. trans. by P. Pratt (1821). The best modern eds. are those of Vogel (1884) and Dosses (1887); Ger. trans. by W. Felsing (1929).

Curtius, Ernst (1814-96), Ger. archaeologist, b. at Lübeck. He became prof. of archaeology and philology at Göttingen (1856-63), and of anct. hist. at Berlin, 1868. C. superintended the Ger. excavations at Olympia. His writings include *Peloponnesos* (1851-52), *Griechische Geschichte* (1857-61); and *Allische Studien* (1863-64). *Consult* L. Gurlitt, *Erinnerungen an Ernst Curtius*, 1902; and F. Curtius, *Ernst Curtius, ein Lebensbild*, 1903.

Curtius, Georg (1820-85), Ger. philologist, brother of Ernst C., b. at Lübeck. His books on comparative philology are standard works on the subject. His chief pub. are *Griechische Schulgrammatik* (1852); *Grundzüge der Griechischen Etymologie* (1858-62); and *Das Verbum der Griechischen Sprache* (1873-76).

Curtius, Mettius, distinguished Sabine. The legend goes that in B.C. 362 the earth in the forum gave way, and a great chasm appeared, which the soothsayers declared could only be filled up by throwing into it Rome's greatest treasure; that thereupon C., a noble youth, mounted his steed in full armour, and declaring that Rome possessed no greater treasure than a brave and gallant citizen, leaped into the abyss, upon which the earth closed over him.

Curule Chair (Lat. *sella curulis*), throne or seat of honour of the old Rom. kings. Later dictators, consuls, praetors, curule ediles, and magistrates, with senatorial rank, might use this chair on certain public occasions. It was made like a folding-stool, with curved legs, and was ornamented with gold, silver, or enamel.

Curvature, Circle of, see CIRCLE.

Curvature of the Spine, see SPINE.

Curve, line which is continuously changing its direction. It is described by a point moving under some given

conditions, and curves can therefore be denominated and classified by naming those conditions. For instance, a circle is a C. formed by a point moving at a constant distance from a fixed point. Other well-known Cs. are the ellipse, parabola, and hyperbola (q.v.), which, when referred to cartesian co-ordinates, involve equations of the second power. If an inelastic thread is made to coincide with a C. and is then uncoiled while being kept tense, its extremity forms a C. which is called the *involute* of the original C.

constructed a cycloidal pendulum in which the bob was made to describe a cycloid; such a pendulum has exactly the same period of oscillation for all amplitudes. Another famous special curve is the *catenary*, or the curve in which a heavy, uniform, perfectly flexible, and inextensible chain would hang when supported at its two ends. The thread of a screw forms the curve known as the *helix*; the *caustic curve* is seen every day when light is reflected by the sides of a tea-cup, while the *sine curve* is of special



CURZOLA

Yugoslav Embassy

The term *evolute* is applied to the original C. with respect to the involute as given C. In another aspect the evolute may be defined as the locus of the centres of curvature of the given C.

Curved Space, logical sequence of the theory of relativity.

Curves (Special). The properties of a large number both of two-dimensional and three-dimensional C. that are not so familiar as the circle, ellipse, etc., have been investigated in detail, and such C. are included under the title of special C. The *cycloid* is a very familiar special curve; it is traced out by a point on the rim of a circle (or wheel) rolling along a straight line. Its interest lies in the fact that it is the *brachistochrone* or curve of quickest descent under the action of gravity from one given point to another given point. Again in 1673 Huygens

importance not only in alternating current engineering, but also in the theory of light and sound. For a discussion of special C. in general, together with their properties, and the manner in which they can best be drawn, see J. Edwards, *The Differential Calculus*.

Curwen, John (1816-80), Eng. writer on music, b. at Heckmondwike, Yorkshire. He developed and improved the 'tonic sol-fa' system, invented by Sarah Glover. He founded the Tonic Sol-fa College at Plaistow in Essex (1875), and started a publishing house in London, which brought out his *Tonic Sol-fa Reporter*. His other writings include *Grammar of Vocal Music* (1843) and *People's Service of Song* (1850).

Curzola (anc. *Coreyra Nigra*, Serbo-Croatian *Korčula*): 1. Is. in the Adriatic, forming a part of Dalmatia and belonging

to Yugoslavia. Area 100 sq. m. Pop. 28,000. 2. Chief tn. of the above, on a rocky promontory on the E. coast. A strongly fortified port and an episcopal see. It has an anct. church (once a cathedral) and a Franciscan monastery of the fifteenth century with a superb Venetian-Gothic cloister. C. was ruled by the Venetians from 998 until in the twelfth century it was taken in succession by the Hungarians and Genoans, to return to Venice in 1420. During the Napoleonic wars it fell at different times into the hands of the Russians, Fr., and Brit., and was ceded to Austria in 1815 and to Yugoslavia after the First World War.

Curzon, George Nathaniel (first Marquess Curzon of Kedleston) (1859-1925), Eng. statesman, the eldest son of the fourth Baron Scarsdale. He was b. Jan. 11, at Kedleston, Derbyshire. Educated at Balliol College, Oxford. In 1883 he failed to obtain a Balliol scholarship—probably through lack of systematic application. In 1885 he became private secretary to the marquess of Salisbury. He entered Parliament as Conservative member for Southport the following year, and retained his seat till 1898. He was under-secretary of state for India (1891-1892); and, on the return of Salisbury to office in 1895, he became under-secretary for foreign affairs, which appointment he held till 1898. In that year he went out to India, viceroy and governor-general, as first Baron C. of Kedleston in the peerage of Ireland. Lord C. worked with untiring energy for the interests of the natives of India; and, though his tenure of office was completed in Aug. 1903, it was extended in order that he might carry out his schemes for reform. His autocratic disposition was not infrequently the subject of criticism, and in 1905 the partition of Bengal made him unpopular with the natives. In the same year Lord Kitchener, commander-in-chief of the forces, objected to the dual control, civil and military, in the Indian Army; and, though his view was opposed by Lord C., the gov. at home supported Lord Kitchener. This led to Lord C.'s resignation on Aug. 12, 1905. On his return to England he became a prominent member of the Opposition under the leadership of Balfour and afterwards of Bonar Law. He was refused a peerage of the United Kingdom by Campbell-Bannerman. He was elected chancellor of Oxford Univ. in 1907, and lord rector of Glasgow in 1908. In the latter year he was elected to the House of Lords as an Irish representative peer. He supported the policy of Lord Lansdowne in allowing the Parliament Bill to pass in 1911. In that year he was made Earl C. of Kedleston, Viscount Scarsdale, and Baron Ravensdale. He thus became a peer of the United Kingdom. Early in the First World War he spoke on many platforms in support of recruiting. In May 1915 he became lord privy seal in Asquith's reconstructed ministry, a member of the war committee and president of the air board. In Dec. 1916, on the formation of the Lloyd

George Gov., he became lord president of the council, leader of the House of Lords, and member of the War Cabinet. In Oct. 1919 he succeeded Balfour as foreign secretary; and he remained so under Bonar Law and Baldwin. In 1922-23 he was at Lausanne to negotiate peace with Turkey. In Aug. 1923 he sent a blatantly undiplomatic note to France about the Ruhr occupation. He retired at the beginning of 1924, having earned the reputation of being a great viceroy, a great foreign secretary, and one of the finest orators of his times. His father's barony and baronetcy had devolved on him in 1916; and on June 28, 1921, he had been created marquess. That year he received the Garter. He took great interest in architecture; all the old buildings that came into his custody were the subject of his closest care, e.g. Tattershall Castle, Lincolnshire; Bodiam Castle, Sussex; and Montacute House, Somerset. His manners and his outlook on life were more appropriate to the eighteenth than to the twentieth century; the former were so magnificent that his colleagues alluded to him as 'the purple emperor.' He was twice married—first to a Miss Leiter of U.S.A. (d. 1906), second (1917) to the widow of Alfred Duggan of Buenos Aires. By the former he had three daughters—the second of whom was Lady Cynthia Mosley. All his life he had been subject to attacks of a spinal complaint, which often disabled him and caused him acute pain. He d. after an operation on March 9, 1925, at his London house, Carlton House Terrace. He left no male issue to succeed him in the marquessate. His viceregal speeches, *Lord Curzon in India*, were pub. in 1906. He had travelled widely in the E., and many of his writings concern his experiences there. Pubs.: *Russia in Central Asia* (1889); *Persia and the Persian Question* (1892); *Problems of the Far East* (1894); *Principles and Methods of University Reform* (1909); *Modern Parliamentary Eloquence* (1913); *War Poems and other Translations* (1915); *Subjects of the Day* (1915); and *Tales of Travel* (1923). See Lord Ronaldshay (Marquess of Zetland), *The Life of Lord Curzon*, 1927-28; and H. Nicolson, *Curzon, The Last Phase*, 1931.

Curzon Line, proposed E. frontier of Poland recognised by the Allies in Dec. 1919 on suggestions by Lord Curzon (q.v.), but not adopted as a boundary between Poland and Russia in consequence of the former's victory over the latter in 1920. The line ran N. from the old frontier of Russia and Austria-Hungary to Brest-Litovsk, then by the course of the R. Bug to Namirov, Jalkova, and Grodno. The line became a reality as Poland's E. frontier in 1945, having been accepted as the future demarcation at the Teheran Conference in 1943 by Russia, Great Britain, and U.S.A. See also POLAND.

Cusa, Nikolaus of, or Nikolaus Cusanus (1401-61), proper name of Chryffs, a Ger. cardinal and philosopher, b. at Kuos (or Cues) on the R. Moselle, in the diocese of Trèves, of humble origin. He was educated

at the univ. of Padua and became arch-deacon of Liège and sat in the council of Basle (1431-49). For the council he wrote *De Concordantia Catholica*, opposing the papal claims, but in 1440 he changed his views, entered the papal service, and was made a cardinal in 1448. Two years later he was consecrated bishop of Brixen in the Tyrol and papal legate for Germany. C. broke away from the prevailing scolasticism and indulged in mystical speculations which have been described as pantheistic—unjustly, however, for while asserting that the Spirit of God breathed over the world, he adds that the Divine Being never became part of the world. He was also a mathematician and believed in the revolution of the earth round the sun. In 1436 he suggested the reform of the Julian calendar. Consult F. A. Scharpf, *Der Cardinal und Bischof Nikolaus von Cusa*, 1871; Schang, *Cardinal Nikolaus von Cusa als Mathematiker*, 1872; J. Lanz, *Die Docta Ignorantia des Nikolaus von Cues*, 1923; and G. Kallen, *Nicolaus von Cues als politischer Erzieher*, 1941.

Cusco-China, bark of the *Cinchona pubescens*, which grows in Cuzco, Peru. It contains an alkaloid called cuscochinoline, or cusconine. When applied medicinally it excites warmth, and is therefore recommended in cold, intermittent, and typhoid states.

Cuscus, or **Phalanger**, genus of marsupials. There are five species, all of which are about the size of a cat, and these inhabit Australia and the E. Indies. They have a prehensile tail, an opposable big toe, and in habit they are arboreal. *C. (or P.) maculatus* is known as the spotted C. or tiger cat; *C. ursinus* and *C. celebensis* are natives of the Celebes.

Cush (Heb. *Kūsh*), according to the genealogy in Gen. x., the eldest son of Ham, and the eponymous ancestor of the Cushites.

Cushat (*Columba palumbus*), known also as the Ring Dove, or Wood Pigeon, member of the sub-family of the Columbine, family of the Columbidae. It receives one of its names from the white patches forming a ring round its neck. It is distributed throughout the Palaearctic region, and has recently multiplied greatly in Britain. Besides the white neck patches, it has also a white wing-bar. The eggs are white, the number being usually two.

Cushendun, Ronald John McNeill (1861-1934), first Baron, Brit. statesman; son of Edmund McNeill, of Craigdun and C., co. Antrim; descended from Torquill, chief of clan Neill in early part of fifteenth century. Educated at Harrow and Christ Church, Oxford; graduated 1884. Called to Bar, 1888. Assistant editor *St. James's Gazette*, 1899; editor, 1900-4. Assisted in preparation of 11th ed. of *Ency. Brit.*, 1906-11. After various unsuccessful attempts was elected M.P. (Conservative) for St. Augustine div. of Kent, 1911-18; for Canterbury div., 1918-27. Strongly supported Ulster's pre-war preparations against Home Rule. In Baldwin administrations parl. under-secretary for foreign

affairs, 1922-24 and 1924-25; financial secretary to Treasury, 1925-27. Ennobled Nov. 7, 1927. Chancellor of the duchy of Lancaster, 1927-29; acting foreign secretary (during illness of Sir A. Chamberlain), Aug.-Dec. 1928; signed Kellogg Pact. Pubs.: *Home Rule: its History and Danger* (1907); *Socialism (in The New Order)* (1908); *History of Australia and New Zealand (Historians' History of the World)*, (1908); and *Ulster's Stand for Union* (1922).

Cushing, Caleb (1800-79), Amer. politician, b. at Salisbury in Massachusetts and educated at Harvard. He was called to the Bar in 1822 and practised at Newburyport. He contributed legal articles to the *North American Review*, and in 1825 was elected to the state legislature, and in the following year to the state senate. He was elected to Congress in 1835, and under the presidency of Tyler became the first Amer. minister plenipotentiary to China. In this capacity he made a treaty between his own country and China in 1844, which opened up China to Amer. missionaries. From 1874 to 1877 he acted as the United States ambas. in Spain. Author of *The Practical Principles of Political Economy* (1826); *Historical and Political Review of the Revolution in France* (1833); *Reminiscences of Spain* (1833); *The Growth and Territorial Progress of the United States* (1839). Consult Livingston, *Portraits of Eminent Americans*, 1851.

Cushing, Harvey Williams (1869-1939), Amer. surgeon, b. in Cleveland, Ohio, son of Henry Kirke C., a physician and son and grandson of physicians. Educated at Yale (graduated 1891) and Harvard (A.M. and M.D. 1895). Began practice in 1895. Associate prof. of surgery at Johns Hopkins Univ., 1902-11; also pursued study abroad, at Berne and Liverpool. From 1911 prof. of surgery at Harvard. From May 1917 till March 1919 he was in France; director, U.S.A., Base Hospital No. 5 attached to Brit. expeditionary force; senior consultant in neurological surgery to Amer. expeditionary force, 1918; colonel, Medical Corps, U.S.A. (D.S.M., U.S.). He was responsible for some outstanding advances in the field of nerve and brain surgery. He bequeathed his great collection of old medical works to Yale Univ. Author of sev. medical works and *The Life of Sir William Osler* (1925).

Cushing, city in Payne co., Oklahoma, U.S.A., in a cotton and oil producing country. Pop. 7700.

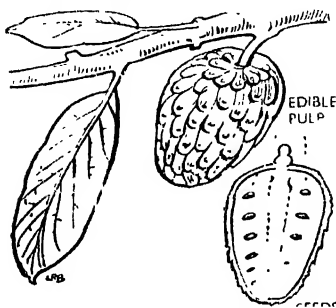
Cushman, Charlotte Saunders (1816-76), celebrated Amer. actress, b. at Boston, of Puritan descent. She made her debut as an opera singer in 1834 in *The Marriage of Figaro*, but her voice suddenly failed, and in the following year she appeared as Lady Macbeth, to the end of her life her greatest role. She played in comedy parts, but excelled mainly in tragedy. In 1844 she made a successful tour through the N. Amer. States with Macready, and afterwards appeared in London and Rome. Her chief parts, besides Lady Macbeth, were Romeo

Rosalind, Meg Merrilees, and Ophella. See E. Stebbins, *Charlotte Cushman: Her Letters and Memories of Her Life*, 1878; and O. E. Clement, *Charlotte Cushman*, 1882.

Cusp, term applied to the foliated points which terminate the internal curves of the trefolled, cinquefolled, etc., heads of pointed arch windows.

Cusset, tn. of France in the dept. of Allier and the arron. of Vichy, 30 m. S.E. of Moulins. It is noted for its mineral springs, also for manuf. of linen, paper, and basket work. Pop. 8700.

Custard-apple, or **Bullock's Heart**, popular name of the species of Anonaceæ technically known as *Anona reticulata*. The plant is a native of tropical America and is allied to the Cherimoyer (*q.v.*). See ANONA ACERÆ.



CUSTARD-APPLE

Custer, George Armstrong (1839-76), Amer. soldier, b. in New Rumley, Ohio, U.S.A. He fought with distinction through the Civil war, serving successively under Kearny and McClellan. As major-general of the volunteers he defeated Gen. Early at Waynesboro in 1864. In 1867-68 he took part in Hancock's expedition against the Cheyennes. He sev. times defeated other hostile Indians in the W., and was finally killed with his men by a body of Sioux near the Little Big Horn in Montana. He wrote *My Life on the Plains* (1874). See F. W. Whittaker, *Life of General George A. Custer*, 1876; Mrs. Custer, *Boots and Saddles, or Life with General Custer in Dakota*, 1885; F. S. Dellenbaugh, *George Armstrong Custer*, 1917; and P. E. Byre, *Soldiers of the Plains*, 1926.

Customs or Usages. In a general sense, C. or U. may be said to be the source or basis of all principles of law. In England C. or U. are said to be either general or local; the former have prevailed from time immemorial, and form the foundations of the common law, while the latter are peculiar to certain dists. only, and in their nature form exceptions to common law principles. The 'Law Merchant,' or C. of merchants, furnished an instance of local or particular C., but by reason of the subsequent universality

of their application gradually became engrafted into the common laws. To be valid C. or U. must have existed from time immemorial (the time of legal memory is fixed as not going beyond 1189). In addition, they must be shown to have been continuous; universally acquiesced in; reasonable, i.e. not contrary to any known principle of law or public morality; definite; and in the opinion of those among whom the custom is alleged to exist, binding. See also COMMON LAW.

Customs Duties consist for the most part of taxes levied upon goods and produce brought for consumption from foreign countries, but may include taxes on certain exports. The term also embraces taxes on goods and produce passing from one port to another of the same country, like the Fr. *octroi* system. At the present time there is no duty on goods exported from the United Kingdom, that on coal, which was the last maintained, having been abolished in 1845, though for a short period, 1902-6, there was a small impost of 1s. a ton on coal to help meet the cost of the Boer war. C. D. furnish an example of indirect taxation, that is, they are taxes which, according to Adam Smith, are demanded from one person in the expectation and intention that he shall indemnify himself at the expense of another. The incidence of such taxation is borne by the person out of whose pocket the tax really comes. Historically C. D. sprang from the royal prerogative of regulating all commercial matters, and the liability of imports to a charge levied by the king is of very remote date. According to Sir Wm. Anson, customs originated in a charge intended by way of repayment to the king for the cost incurred in maintaining the ports and keeping the sea clear from pirates. Later on the charges were increased and embraced prisage, i.e. the royal right to one cask of wine out of every ten in the ship's cargo, at 20s. a cask; customs on general merchandise; and on wool, fish, salt, and leather. Then merchants began to complain of the levy of 'evil toll-' with the result that by Magna Charta they were to be allowed to trade without being subject to any but 'ancient and lawful customs.' In 1275 Edward I. by a statute which was probably the earliest passed in the United Kingdom whereby the Crown was authorised to levy C. D., was granted in exchange for the 'ancient and lawful customs' (*antiqua custuma*) of the charter an export duty of half a mark on every sack of wool, and one mark on the last of leather. By the *Confirmatio Cartarum*, 1297, these duties were excluded from the express surrender by the king of the right to impose arbitrary customs. In 1303, by the *Carta Mercatoria*, foreign merchants were charged forty pence on every sack of wool and half a mark on the last of leather in consideration of certain privileges. This charge was known as the *nova custuma*, and was refused by the representatives of the burgesses (*q.v.*). The *antiqua* and *nova custuma* remained,

however, together with *prisage* and *butlerage* upon imported wines, a part of the hereditary revenues of the Crown until their absorption in the subsidies of tonnage and poundage made to the Crown at the beginning of each reign or Parliament. The mode long employed in the collection of these duties was to affix a certain rate of value upon each kind or article of merchandise and to grant what was called a *subsidy* upon these rates. The word *tonnage* in the early statutes was applied to a specific duty charged on the importation of each ton or tun of wine and the exportation of each tun of beer; the word *poundage* was applied to other articles valued in the mode above mentioned. James I. made unconstitutional and illegal impositions, and in 1608 issued a Book of Rates imposing a number of new and heavy duties. Years of bitter controversy followed, and the resistance of the merchant *Bate* to the imposition of the added duty on currants and the judgment by *servile* judges of the Court of Exchequer in favour of the Crown form an epoch in the constitutional hist. of the United Kingdom, and confirm the celebrated aphorism of Hallam that our liberties were purchased by the money of our forefathers. The Petition of Right, 1628, declared these impositions illegal. The first Book of Rates agreed upon by the House of Commons is generally believed to be that compiled in 1612 by a committee of the House. In 1660, at the restoration of Charles II., the C. D. were consolidated and the principle of poundage was altered in regard to certain articles, upon which specific duties were imposed instead; but the old system of affixing a certain value on each article was adhered to in regard to the bulk of the articles, the time-honoured distinctions between *antigua* and *nova custuma* were abolished, and rates were classified under three heads, viz. tonnage on wine, poundage on imported and exported goods, and a duty on woollen cloth, which last duty was repealed in 1700. In the reigns of William III. and Anne many additional specific rates were imposed in place of the valuation for the subsidy. This course of substitution was pursued from time to time, until in 1747 there were as many as thirty-nine prin. branches of C. D. with subdivisions applying to different kinds of goods, the whole constituting an endless embarrassment to traders. In 1787 Pitt effected a new consolidation of C. D., and the entire revenue derived therefrom was to be paid into a single fund, called the Consolidated Fund, thus doing away with the old practice of allocating each duty to a specific service or particular public purpose. Sev. Consolidation Acts have been passed since that time, and new imposts created. In 1853 the solicitor for the customs was employed on a work of complete consolidation. The result of his labours was a condensation of the various acts into a clear methodical arrangement which formed the basis of the Customs Consolidation Act of

1853.* Under that Act provision was made for the first time for the acceptance of general or covering bonds in lieu of the immense number of separate or special bonds, which previously involved many thousand attendances per annum of merchants and their sureties. Between 1842 and 1853, however, a salutary change had come over the financial policy of the United Kingdom. With the advent of Peel came the intimation of the policy that was carried on by Gladstone and other statesmen after him, and which is in substance the fiscal policy of the country up to the year 1932, when a protective tariff was introduced. That policy, which was twofold, was directed to the simplification and cheapening of the collection of revenue by means of a reduction of the number of articles or commodities on which duty is leviable; to the strengthening of the home industries by the abandonment of all taxes on raw material imported into the country. By about 1872 all foreign products were free from duty on importation, with the exception of ten leading articles, comprising cocoa, coffee, currants, figs, raisins, spirits, sugar, tea, tobacco, and wine—and even these were allowed very considerable reductions. Until 1869 corn and flour contributed to the revenue at nominal rates, corn at 3*d.* and flour at 4*d.* per cwt. After 1869 both were admitted free, and it is hardly an exaggeration to say that the decision of the electorate in favour of the maintenance of a free trade policy was a decision due as much to fear that some corn duty might be imposed as to the fear that food prices would rise as an indirect result of tariffs proposed on imported manufactured articles. The management and collection of C. D. are committed by the Customs Consolidation Act of 1876 to a board of five commissioners, subject to the authority of the Treasury, each of whom holds office during the royal pleasure. In the Finance Act of 1925, Mr. Winston Churchill, as chancellor of the exchequer, imposed various new duties which were much criticised by free traders. A duty equal to 33½ per cent *ad valorem* was imposed on motor cars, motor bicycles, motor tricycles, with their component parts other than tyres; musical instruments, including gramophones, pianolas, and similar instruments, clocks and watches, with component parts, imported into Great Britain or N. Ireland, and by the same Act a customs duty equal to 33½ per cent of the value of the imports was also imposed for five years on numerous other manufs. The 1925 Finance Act was also noteworthy for introducing a measure of empire preference in respect of sugar, molasses, glucose, and saccharin produced within the Empire. Preferential rates of duty were fixed at three-quarters of the full rate on tobacco; at five-sixths of the full rate on silk and artificial silk, and so on. A fundamental change was introduced by the National Gov. of 1931, which, soon after coming into office, passed emer-

agency legislation to check dumping in anticipation of its projected reversion to protection. Under the Abnormal Importations (Customs Duties) Act, 1931, the Board of Trade was empowered to levy C. D. up to 100 per cent *ad valorem* on foreign manu. imported into the United Kingdom in abnormal quantities. The Act was to continue in force for only six months, but that interval was sufficient to allow the passing of the Import Duties Act, Feb. 29, 1932, which provided for the imposition of a general *ad valorem* duty of 10 per cent on all imports (except those already dutiable) subject to a free list, comprising chiefly foodstuffs and raw materials. This free list is, however, subject to amendment by Order in Council. The Act also provided for the imposition of 'additional duties' (i.e. over and above the general *ad valorem* duty) on articles of luxury. The principle of empire preference was followed by exempting dominion goods and the goods of the colonial empire absolutely.

The following table gives under various headings against respective years certain receipts from customs. The last column refers to Ottawa duties, i.e. the duties imposed on foreign goods as the result of the Imperial Economic Conference held in Ottawa in July-Aug. 1932 (see OTTAWA CONFERENCE). The resultant Act of Parliament confirmed the various agreements made with the dominions. Net receipts from C. D. for the year ending March 31 were £620,823,504 (1947) and £773,323,000 (1948). Duties on certain imports from Euro were: 1932-33, £2,515,000; 1933-34, £1,555,000; 1934-35, £4,695,000; 1935-36, £5,423,000; 1936-37, £4,712,000; 1937-38, £4,182,000; and 1938-39, £325,700.

and legal proceedings, civil or criminal, under the various Customs Acts. A drawback is an allowance made by the commissioners to merchants on the re-exportation of certain imported goods liable to duties, which allowance in some cases consists of the whole, in others of a part, of the C. D., which has been paid upon the importation. The effect is that goods can then be sold in a foreign market at their normal cost in the home market.

Customs Union, denotes a federation of independent states or nations with the object of assimilating their respective arrangements for the collection of duties on imports. The term was of especial significance in relation to Germany, for it may be said that the consciousness of a national unity among the different Ger. peoples was ultimately traceable to the estab. of the Zollverein (Zoll, toll; verein, union) between Prussia and some of the smaller states shortly after the Napoleonic wars. The political condition of the numerous petty Ger. sovereign states was then one of entire confusion. The Zollverein was organised as the outcome of a general reform of the existing tariff conditions, which imposed tariffs on no fewer than 2800 classes of goods in various parts of Prussia, while in others there prevailed a system of free importation. From the time Hesse joined the union in 1828 the hist. of the Zollverein down to 1871 was one continuous process of an absorption of one state after another until, in that year, the Ger. Empire itself was founded, and the Prussian Zollverein was finally transformed into the Ger. Zollverein. Hamburg and Bremen were included in 1888; prior to that time Germany's economic policy

Yr. en'd Mar. 31	Spirits	Sugar	Tobacco and Snuff	Wine	Tea	Oil	Imports Duty Act, 1932	Ottawa Duties
	£	£	£	£	£	£	£	£
1936	4,563,654	9,198,297	75,098,991	4,642,359	4,084,119	45,187,710	24,686,623	8,126,176
1937	4,843,550	9,959,793	77,456,319	5,156,519	7,829,512	47,868,641	27,782,945	7,651,202
1938	4,813,872	9,807,635	82,951,392	4,996,610	7,352,116	50,258,911	29,712,341	8,096,993
1943	18,277,244	13,845,717	351,213,006	2,447,894	7,640,752	55,938,951	12,406,714	2,873,439
1944	17,327,266	21,317,327	388,828,191	2,333,129	10,463,961	84,309,964	17,016,702	3,772,545
1945	22,403,376	17,619,495	382,221,610	2,469,805	10,859,164	111,267,926	15,987,215	3,535,294
1946	17,012,470	19,624,262	416,929,546	4,991,557	9,657,746	65,488,457	15,577,111	2,398,652
1947	25,029,965	19,241,763	446,929,938	10,807,295	9,477,100	56,494,633	28,841,284	4,732,833
1948	42,840,076	25,303,674	568,717,670	15,592,133	10,036,191	57,538,583	45,311,617	7,903,456

The Customs Consolidation Act, 1876, which, with the various amending Acts passed since that time, may be regarded as the prin. statute relating to C. D., contains a great number of provisions dealing in detail with the collection and management of duties; disputes and inquiries respecting C. D.; drawbacks; bonds and securities entered into by persons for the due performance of any condition relative to the customs, penalties for signing false declarations relating to the customs; prevention of smuggling;

had been one of free trade, but in that year was introduced a hard and fast protective system which, with subsequent modifications in the shape of commercial treaties (q.v.) with some of the neighbouring nations and most favoured nation treatment for Great Britain, continued until recent years. A somewhat parallel case is the development of the C. U. which was formed between Cape Colony, the Orange Free State, and Brit. Bechuanaland towards the end of last century, and which was joined shortly afterwards by

Rasutoland. The question of the adoption of some kind of C. U. or Zollverein for the different members of the Brit. Empire was before the Brit. public in a more or less urgent form from the time of the vigorous tariff reform campaign undertaken by Joseph Chamberlain in the autumn of 1903. But the proposals put forward by the dominion premiers at the Imperial Conference, 1930, for the imposition of a tariff on foreign foodstuffs were rejected by the Labour Gov. in London. A great impetus to what was in effect a C. U. of the Brit. Commonwealth of Nations was given by the combined operation of the Import Duties Act, 1932, and the Ottawa Trade Agreements concluded in Aug. 1932, between the United Kingdom and the dominion govts. and between the dominion govts. *inter se*. A C. U. has existed between Belgium and Luxembourg since 1922, with the exception of five years during the Second World War. The Netherlands on the one hand, and Belgium and Luxembourg on the other, agreed on a C. U. on Sept. 5, 1944, and this was brought into force, with certain reservations, on Jan. 1, 1948 (see *BENELEX*).

Custos Brevium. Offices so called existed until 1831, both in the court of king's bench and the court of common pleas. The duties appertaining to the office, which were always performed by deputy, were to take custody of all writs returnable to the above courts, and to file them.

Custos Rotulorum (Keeper of the Rolls), in England a justice of the peace to whose custody are committed the records or rolls of the co. sessions. It is the practice to appoint as C. R. the lord-lieutenant of the co.

Custoza, or Custoza, vil. of Italy, about 11 m. S.W. of Verona, the scene of two important battles in It. hist. Here in 1848 the Austrians, led by Radetzky, defeated Albert, king of Sardinia, and in 1866 the It. troops, under Lamarmora, were defeated by the Austrians. Pop. 700.

Cutch, or Kaoh; 1. Native state in Gujrat, Bombay, in the dominion of India. It is a peninsula, bounded on the N. by the Rann of C., on the W. by the Indus and Arabian Sea, on the S. by the Indian Ocean and gulf of C. It is crossed by two ranges of hills. Mineral products are coal, iron, alum, and salt. Wheat, millet, and cotton are grown, but cultivation is dependent on artificial irrigation. Volcanic eruptions and earthquake shocks are of frequent occurrence. The ruler is called the Maha Ras. Cap., Bhuji. Area, excluding the Rann, 6500 sq. m. Pop. 514,000. **2.** Rann or Rann of C., a salt morass on the N. of the state of C. During the S.W. monsoon it fills and becomes an arm of the sea. In the dry season it is divided into two shallow lakes, the smaller, on the E., having an area of 2000 sq. m., and the Great Rann on the W. an area of 7,000 sq. m. Wild asses are found on the shores of the lakes and swarms of flies. The Indian gov. is planning a new port at Kandla on the S. coast of the is. of C.

Cuthbert, St., of Durham (c. 635-87), was b. probably in Northumbria, of Lowland Scottish parentage, and originally a shepherd. In 651 he had a vision of a choir of angels bearing the soul of St. Aidan to heaven, and in the same year joined the monastery of Old Melrose. On the death of St. Boisil, in 661, he was chosen prior, with St. Eata as his abbot, whom he later accompanied to the monastery of Lindisfarne. In 676 he felt that he was called to a sterner and simpler life, and became a hermit on House Is. off Farne Is., where he built his hut with his own hands. Egfrid, king of Northumbria, and Trumwin, bishop of the Picts, persuaded him, in 684, to accept the bishopric of Hexham, which he subsequently exchanged for that of Lindisfarne. Two years later he resigned his bishopric, and once again withdrew to his cell, where he d. within a year. His body was removed from Lindisfarne in 875 for fear of its being desecrated by the Danes, and for a time remained first at Chester-le-Street and then at Ripon, ultimately finding its resting-place in Durham Sept. 4 was commemorated as the anniversary of his death. See Bede, *Historia Ecclesiastica Gentis Anglorum*, and lives by T. Raine, 1828, and C. Eyre, 1849.

Cuticle, see SKIN.

Cutler, Manasseh (1742-1823), Amer. clergyman, who acted as chaplain during War of Independence to Col. Ebenezer Francis. He took a leading part in drafting the ordinance of 1787 for the gov. of the N.W. Ter.

Cutlery (O.F. *cutellier*, Lat. *cutellus*, a little knife), term applied originally to cutting instruments of all kinds. The word is often extended to include all kinds of table implements, so that forks may be included, but has also been restricted in its application, so that the larger kinds of cutting instruments, such as chisels and saws, are excluded from its sense. Knives were not placed on the table till the early sixteenth century, diners being expected to carry on their persons such pocket-knives as they might require. Forks were introduced from Italy in the reign of James I. Sheffield was famous for its C. as early as the fourteenth century, but lost some of its pre-eminence by the seventeenth century, when Birmingham was regarded as the centre of the trade. But since 1800 Sheffield has increased in industrial prosperity, and its C. wares have now a world-wide fame. The term C. also applies to penknives, razors, scissors, to carpenters' tools, sickles, special surgical instruments, and to swords and rapiers, all of which see under separate articles.

Cuttaok, dist. in the prov. of Orissa, India, with an area of 3517 sq. m. It is watered by the Braminy, Mahanuddy, Coyle, and other rivs., all teeming with fish. Near the coast are hills covered with teak and other timber. Rice, pulse, and sugar are cultivated in the lowlands, and wheat and maize on the uplands. The city of C. is noted for its gold and silver filigree work. There is a college, medical school, and school of engineering.

and a fine gateway of a ruined fort. Pop. 51,000.

Cutter, Charles Ammi, Amer. librarian (1837-1903), b. at Boston, Massachusetts, originator of the dictionary catalogue, and of the widely used system of library book classification, known as expansive classification. See CATALOGUES AND CATALOGUING.

Cutter, name given to a small vessel, part of the equipment of a warship. They are used for sailing or rowing, and are carried amidships or at the davits. It is also used of a vessel with a single mast, a mainsail, a fore-staysail, and a jib at the bowsprit end.

Brest (1694), Namur (1695), at the capture of Fort St. Michael (1702), and was third in command at Blenheim (1704). C. sat in Parliament for sev. years, from 1689 to 1691, and again from 1702 to 1707. Besides being a gallant soldier, he was a scholar and a graceful versifier. His works include *La Muse de Cavalier* (1685); *Poetical Exercises written upon Several Occasions* (1687); and a 'monody' in *State Poems* (p. 199) on the death of Queen Mary (1695). He was a friend of Steele, who addressed to him his *Christian Hero*, but was made ruthless fun of by Swift, particularly in his somewhat scurrilous lampoon, *Ode to a Salamander*



THE 'CUTTY SARK' AT FALMOUTH

Brush Railway

Cuttle-fish, sometimes regarded as the name of any mollusc of the class Cephalopoda (q.v.), but is more usually applied to the species of the genus *Sepia*. The species, of which *S. officinalis*, the common C. of Britain, is an example, have two gills, eight arms, and two long tentacles, a broad and flattened body, an ink-bag, narrow and elongated fins, and the calcareous shell, called the cuttlebone, is internal. In length a C. may be from 6 to 10 in., and its colour varies from grey to brown. The genus is widely distributed and is notable as producing the pigment known as sepia.

Cutts, John, Baron Cutts of Gowran, Ireland (1661-1707), Brit. Lieutenant-general, was probably b. at Arkesden in Essex. He was educated at Catherine Hall, Cambridge, and joined the suite of the duke of Monmouth. He later served under Charles, duke of Lorraine, against the Turks, in Hungary, and in 1686 played a prominent part in the capture of Buda. He then served in Holland under William of Orange, whom he accompanied to England and with whom he fought in Ireland at the battle of the Boyne and the siege of Limerick (1690). For his services he was created Baron C. of Gowran. During the following twelve years he did brilliant service, being present at the battles of Steenkerque (1692),

(1703). See Macaulay, *History of England*, vols. iii. and iv., and S. S. Swartley, *The Life and Poetry of John Cutts*, 1917.

'Cutty Sark,' one of the most famous of the tea-clippers, which, with the *Flying Cloud*, *Ariel*, and others, was engaged in the China tea trade during the last century. One of the very few such ships still in existence, for many years afloat and preserved at Falmouth. John Massfield wrote a novel on the thrilling race sailed by these clippers. See also CLIPPER.

Cutworm, name given to the larvae of many species of Noctuidæ, or owl-moths from their displeasing habit of cutting off the young shoots of plants cultivated by agriculturists. They belong to the genus *Agrotis*, and are allied to the army-worm and cotton-worm. *A. messoria* is a common species in America.

Cuvier, Georges Léopold Chrétien Frédéric Dagobert, Baron (1769-1832), Fr. anatomist and naturalist, writer, and educational reformer, b. at Montbéliard, Doubs, France, then under the rule of the king of Württemberg. He studied at the Carolinian Academy at Stuttgart, where he distinguished himself in every branch of study. At the age of nineteen he became tutor to the only son of Count d'Hercy near Caen, where he was enabled to study the animals and fossils of the shore and rocks. It was here that he

pursued the researches which enabled him to reorganise the classification of invertebrate animals. In 1795 he went to Paris, and by the exertions of his friends, Tessier and Geoffroy St. Hilaire, became prof. at the Jardin des Plantes. In 1798 he began to publish his papers on the fossil bones of Montmartre, which led later to his great work, *Recherches sur les ossements fossiles des quadrupèdes* (1812). In 1800 was appointed prof. of natural hist. in the Collège de France. Here he came under the notice of Napoleon, who, struck by his administrative ability, appointed him one of the inspectors of the lycées in the prin. tns. of France, and later employed him in reorganising the



BARON CUVIER

educational institutions all over Europe, in N. Italy, Holland, and finally in Rome. In 1814 the emperor appointed him a councillor of state, which appointment was confirmed by Louis XVIII. In 1822 his services to the Protestant faith were acknowledged by his appointment as grand master of the faculties of Protestant theology in the Univ. of Paris. In 1832 Louis Philippe made him a peer, but he d. of paralysis the same year in Paris. In spite of the valuable results of his researches, C.'s mind was essentially cast in the mould of an older school. His method was to construct from facts or materials which he could himself observe; he had no patience with the speculative theories of his contemporaries, and was bitterly opposed to the dawning theory of evolution. In addition to the works already mentioned he wrote *Le Règne animal* (1816), a book which summarised his observations on the structure and habits of the animal kingdom, and was long the standard work on zoology; *Mémoire pour servir à l'histoire et à l'anatomie des mollusques* (1816), in which he followed out a classification of the

Mollusca, indicated by Adamson, founded upon the structure of the animal rather than the shell; *Rapport historique sur les sciences naturelles* (1789-1808); *Histoire naturelle des animaux* (1798); and many others. See H. D. de Blainville, *Cuvier et Geoffroy Saint-Hilaire*, 1890; and H. Dandín, *Cuvier et Lamarck*, 1926.

Cuxhaven, once fortified Ger. port, in the dist. of Stade, Hanover, on the S. shore of the estuary of the Elbe, 70 m. from Hamburg. The port was formerly only used for coasting vessels and fishing craft, but was rebuilt in 1892-95, and can now berth the largest ocean steamers. There are some fine fisheries and good sea-bathing. Pop. 26,200.

Cuyabá, cap. of the state of Matto Grosso in Brazil. In the dist. there are gold-mines, which have been worked since 1719. The traffic is chiefly in the exchange of gold for iron and other implements. The tn. is well built and has a military hospital, arsenal, palaces for the governor and the bishop, and collegiate schools. It is an important and rapidly developing distributing centre. The temp. varies between 106° and 39°. Pop. 44,000.

Cuyahoga Falls, city of Summit co., Ohio, with manufs. of iron and rubber goods, a suburb of Akron. Pop. 20,500.

Cuyapo, municipality of Nueva Ecija prov., Luzon, Philippine Is., growing rice. Pop. 20,000.

Cuyo, tn. and pueblo of the Philippines, cap. of the prov. of Paragua and Calamianes, on the S.W. shore of the is. of C. Pop. 13,000.

Cuyp, Aalbert, or Aelbert (1620-91), Dutch painter, b. at Dordrecht. He was the son of Jakob Gerritsz C., a portrait painter, with whom he began his study of painting. C.'s sunset pictures have been compared favourably with those of Claude. He painted, almost entirely, scenes of outdoor life—fields, camps, markets, and the like. His reputation has increased greatly since his death, England being among the first to recognise his genius. There are eight of his works in the National Gallery, London, and he is also represented in the Wallace collection and in Dublin and Dulwich. Among his best pictures are 'The Meuse near Dort' and 'Banks of a Lake.' See H. J. Buxton and E. J. Poynter, *German, Flemish, and Dutch Painters*, 1881, and T. Cole, *Old Dutch and Flemish Masters*, 1902.

Cuyp, Benjamin (1612-52), Dutch painter, an elder brother of Aalbert C. His landscape and biblical pictures show the influence of Rembrandt, and his familiar scenes that of Teniers. 'Joseph in Prison' and 'The Visit of the Magi' are among his best known works.

Cuypers, Petrus Josephus Hubertus (1827-1921), Dutch architect, b. at Roermond. He studied at the Academy of Antwerp, being a pupil of Viollet-le-Duc. A student of Gothic, to whom is due the revival of that style in Dutch Rom. Catholic churches. Architect of St. Jacob at The Hague, St. Barbara at Breda, St. Catherine at Eindhoven, Sacred Heart at Amsterdam, and St. Boniface at

Leeuwarden. He had charge of the restoration of the cathedral at Mainz; designed many tn. halls, besides the Rijksmuseum and the central railway station at Amsterdam.

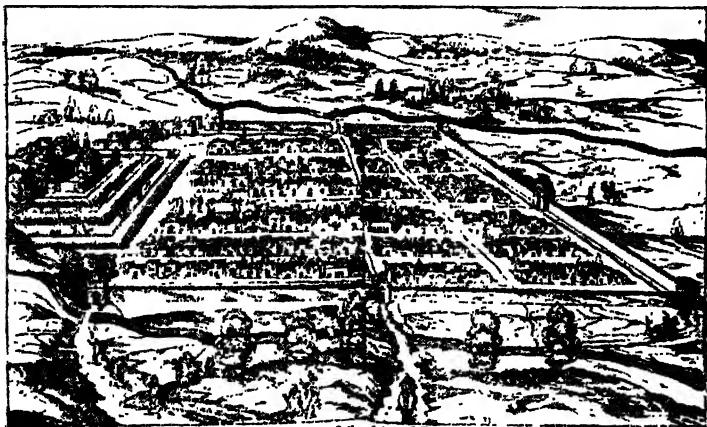
Cuyuni, or **Cuyuwini**, riv. of Brit. Guiana; a trib. of the Essequibo. It is navigable for about 500 m. and has for one of its tribs. the gold-bearing Yuruari.

Cuzco: 1. Cap. of C., a div. of S. Peru, in a small valley 11,440 ft. above sea level and nearly enclosed by mts., 360 m. E.S.E. of Lima. It was the cap. of the Incas, and was captured by Pizarro in 1533, to be superseded later by Lima as the cap. of the Spaniards. One mile to the N.W. of the city, on the hill Sacsahuaman, are the ruins of a great fortress

was in London, where she appeared in Handel's It. Opera Company in 1722. Her jealousy was aroused by Faustina Bordoni (afterwards the wife of the composer Hasse), whom Handel engaged to sing in her place, with the result that she retired, and, on her marriage to Sandoni in 1727, returned to Vienna, where she sang at the court opera. She later went to Holland, and paid a second visit to London in 1748, but she had lost her voice and received no welcome. She d. in great misery and poverty at Bologna.

Cwmdu, par. of Glamorganshire, Wales, 6 m. N.W. of Bridgend; noted for its iron and coal-mines. Pop. 15,000.

Cyanamide, NH_2CN , is a white crystalline solid melting at 40°C . Its chief point



A VIEW OF CUZCO IN 1536

of the Incas. The chief buildings are the cathedral, the Dominican monastery and church (built on the foundations of the Inca sun temple of Coricancha), the univ. (1598), and a college of arts and sciences. The climate is cool and bracing, and the prin. products are wool, hides, cacao, rum, rubber, sugar, and gold. Indians furnish the chief market. Cotton and woollen goods, embroidery, gold and silver goods, and leather are manufactured. C. is connected with the coast and La Paz, the cap. of Bolivia, by a branch line from Juliaca on the Mollendo-Puno railway. The pop. of 40,000 is mainly Indian. 2. The dept. of C. is the second largest in Peru, and is mainly composed of mts. and forests. Cereals are grown in small quantities, and cattle and sheep are reared. Area, 55,176 sq. m. Pop. about 486,500. See Sir C. Markham, *The Incas of Peru*, 1910; Ena Dargam, *The Road to Cuzco*, 1948; and C. Sandeman, *A Wanderer in Inca Land*, 1948.

Cuzzoni, Francesca (1700-72). It. singer, b. in Parma. She was trained and made her debut in Italy, but her first success

of interest is its power of forming metallic derivatives in which the two hydrogen atoms are replaced by an atom, or atoms, of a metal. The prin. metallo C. is calcium C. or 'Kalkstickstoff', CaNCN , which is made by heating calcium carbide to a high temp. (about 1100°C .) in a current of nitrogen: $\text{CaC}_2 + \text{N}_2 = \text{CaNCN} + \text{C}$. The crude substance is black in colour, owing to its contamination with the carbon produced at the same time. It contains about 20 per cent of nitrogen, all of which is ultimately liberated as ammonia by the action of water. This reaction explains the use of calcium C. as a fertiliser, since the bacterial soil flora is able to convert the ammonia into nitrates, which are vital to plant growth. Agric. practice has shown that calcium C. is best adapted to soils that contain plenty of lime. Calcium C. is also used to some extent in the manuf. of ammonia for chemical purposes. In this case the calcium C. is decomposed by steam. It is further employed in the industrial preparation of other chemicals, e.g. urea and sodium cyanide, though its

agric. use is by far the most important. The conversion of atmospheric nitrogen into a nitrogenous compound, such as calcium C., is known as the *fixation* of nitrogen, and since natural supplies of nitrates (e.g. Chile salt-petre) will become exhausted at no very remote date, the world's food supply will then depend upon fixation methods, as indeed it already largely does. See J. R. Partington and L. H. Passar, *The Nitrogen Industry*, 1922, and B. Waeser, *The Atmospheric Nitrogen Industry*, 1926.

Cyanææ Insulæ (Gk. Κυανæαι νῆσοι, or νῆσαι), two rocky is. situated at the entrance of the Thracian Bosphorus into the Buxine. They were called in mythology Planctæ (Πλάκται) and Symplegades (Συμπληγάδες), because they were supposed to be floating is. which wandered about and struck against ships, thus destroying them. They became stationary after the Argonauts had sailed safely past them.

Cyanic Acid (HO CN), strongly acid liquid which can hardly be prepared in a free state, since it decomposes at temps. above 0° C. Forms salts known as cyanates, the most interesting being ammonium cyanate, which gives urea on heating. The formation of urea in this manner by Wöhler in 1828 was the first formation of organic compounds from inorganic sources.

Cyanide of Potassium, see POTASSIUM.

Cyanides are salts of hydrocyanic, or 'prussic', acid, HCN. Prussic acid itself is hydrogen cyanide. It was discovered in 1782 by the Swedish chemist Scheele. Technically it is prepared indirectly from molasses, but in the laboratory the usual method adopted is the action of dilute sulphuric acid on potassium cyanide, KCN. Prussic acid is a colourless volatile liquid, boiling point 26° C., with a characteristic smell recalling that of almonds. It is excessively poisonous. Among the C., potassium cyanide and sodium cyanide are the most important. Potassium cyanide is made by the action of ammonia upon a molten mixture of potassium carbonate and carbon, while sodium cyanide is the result of fusion of a mixture of metallic sodium and sodium ferrocyanide. Both are exceedingly poisonous and must be used with the greatest possible caution. Potassium cyanide is used in entomological killing-bottles and also in chemical processes. Sodium cyanide finds application chiefly in the extraction of gold in S. Africa, etc. Complex C. are known, including potassium ferrocyanide and potassium ferricyanide (yellow and red prussiates of potash). Those important are the complex silver and gold C. used (in solution) in silver and gold electroplating as the electrolytic liquid. Prussic acid itself is extensively used, under suitable restrictions for killing pests, e.g. noxious insects, rats in ships, plague germs, etc. For this purpose it is marketed in steel or iron cylinders.

Cyanogen (C₂N₂), colourless poisonous soluble gas, with a smell like that of bitter almonds, produced by heating mercuric

or silver cyanide. It occurs as an acid radical in a series of salts called cyanides, all of which are poisonous. The best known of these are potassium cyanide and sodium cyanide, which are used in photography and metallurgy. C. combined with hydrogen forms prussic acid, which is known as a deadly poison, but which also has medicinal properties.

Cyanometer, instrument for comparing the shades of the sky, consisting of a circle of pieces of paper tinted with blue. These pieces vary in shade from the colour of solid indigo at 52° to colourless at 10°. When held so that a full light falls on the pattern, the circle can be turned until the shade in the sky is matched.

Cyanosis, lividity of complexion accompanied by a fullness of the capillaries and small veins of the face and lips especially. It is applied especially to the colour in certain cases of congenital disease or malformation of the heart. Temporarily it may be caused by extreme cold preventing circulations in the exposed parts. It is usually due, however, to some organic effect which prevents perfect oxidation of the blood. Thus in some cases, because the foramen ovale remains open, some blood can pass from the left auricle direct to the arteries without passing through the lungs, or again, a perforation may allow blood to pass from the right to the left ventricle, while it may be caused by an obstruction in the pulmonary artery or in the lungs, or by heart failure.

Cyanuric Chloride, see CHLOROCYANIC ACID.

Cyathea, the genus of ferns which gives its name to the order Cyatheaceæ, is to be found in its most highly developed state in tropical climates. The species are arborescent, the stems are often beautifully marked with the scars of fallen fronds, and the plants give a peculiar feature to the vegetation of many lands. *C. arborea*, the common tree fern, is a native of the W. Indies; *C. medullaris* and *C. dealbata* both grow in New Zealand, and contain a starchy matter used by the natives as food.

Cyaxeres (Gk. Κυζάρης) (625-585 B.C., or 634-594 B.C.), king of the Medes, grandson of Darius, the founder of the Median Empire. He organised a powerful and well-trained army, with which he waged war against the Lydians, the Assyrians, and the Scythians.

Cybele (Gk. Κυβέλη), or *Rhea Cybele*, also called *Agdistis* and *Dindymene*, goddess of anct. mythology, worshipped throughout Phrygia, and in many parts of W. Asia. Her priests were called *Corybantes*. She was the wife of Cronus, and the mother of Zeus, Poseidon, and Hades. She was, therefore, worshipped as the mother of the gods. In Asia Minor she was regarded as a nature goddess, or universal mother, and her worship was attended with wild orgies. In Greece she was identified with *Rhea*, whose worship originated in Crete. The worship of C. was introduced into Rome in 204 B.C., where she was identified with *Ops* (Plenty), the mother of Jupiter.

Cybistra, see EREGLI.

Cybium, a genus of mackerel-like fishes, is also known as *Scomberomorus*, and belongs to the family Scombridae; the tunny and mackerel are near relatives of the species. Fossil remains occur in the Eocene, Oligocene, and Miocene.

Cycadaceae, order of Gymnosperms containing about seventy-five species of living plants which have a long primary tap-root, an unbranched stem covered with leaf-scars, a crown of leathery, often spiny-tipped, leaves at the apex of the stem, and the flowers are usually arranged as cones. The species are found only in tropical and sub-tropical countries, and the chief genera are *Cycas*, *Zamia*, *Euphalaris*, and *Dioon*.

Cyclades, ls. group which form a *nomos*, or dist., of the kingdom of Greece. The name is derived from the Gk. κύκλος, a ring, because they form a rough circle round Delos, stretching S.E. from Kubon and Attica. The chief ls. are Andros, Tenos, Syros, Mykonos, Paros, Naxos, Amorgos, Keos, Kythnos, Seriphos, Melos, and Ios. Many of the ls. are of a volcanic origin, and from some marble is procured; Parian marble was very famous among the ancients. Wine, oil, gum-mastic, wax, etc., are produced and sponge fishing is carried on. Hermopolis (pop. 22,000), on Syros, is the largest tn. The ls. are a stronghold of the ant. belief in Nereids who are extremely beautiful and graceful with long golden hair and voices of more sweetness than the human. In the ls. of Sikinos they are subject to the deformity of having one or more donkey or goat hoofs in lieu of feet. The ls. comprise an area of about 959 sq. m. Pop. 147,000. See A. Dell, *Isles of Greece*, 1926.

Cyclamen, small genus of primulaceous plants, consisting of about a dozen herbs with very handsome flowers; all are to be found in Europe or on the borders of the Mediterranean. *C. europæum*, the common C., is abundant in Sicily, and is often called sowbread, from the delight it afforded the wild boar as a food. It has been found wild in Britain, but it is probably only an escape from gardens. The plant has an underground corn, and the lobes of the corolla are reflexed. After fertilisation the flower-stalks twist round until they bury the capsular fruits in the ground, where the seeds ripen and germinate, and produce other plants. *C. persicum* has a stalk which bends over instead of twisting in the burying of the fruit; *C. hederifolium* is a species the flowers of which exhale a pleasant fragrance. *C. neapolitanum* flowers in summer and autumn in Britain; *C. coum* and *C. ibericum* in autumn and winter; the ruby crimson *C. repandum* in spring, and *C. europæum* in summer. Thus C. may be seen in flower in gardens all the year round.

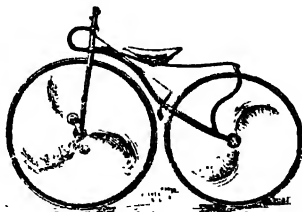
Cycanthaceae, family of monocotyledonous plants, palm-like in habit and found in tropical America. The chief genera are *Cycanthus* and *Carludovica*, the latter genus being of interest to Europeans from the fact that the real Panama hats are manufactured from the bleached leaves of *C. palmata*.

Cycle (Gk. κύκλος, circle), in astronomy and mathematical chronology, a period of time in which certain phenomena repeatedly occur in the same order. Cs. have been invented as a means of measuring time. The chief are the solar, that of the sun, and the lunar or metonic, that of the moon. The former consists of twenty-eight Julian years, and the latter of nineteen years. Consult the articles on the calendar and on Chronology, and the various Cs. under their specific names: Golden Number, Indiction, etc.



THE HOBBY-HORSE, 1818

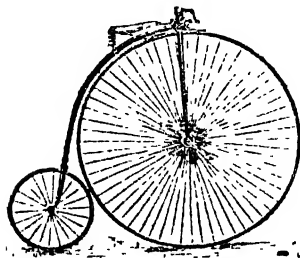
Cycles and Cycling. *History and Development.*—It is hard to fix definitely the origin of an invention that has had so continuous a development as the cycle. Velocipedes and machines driven by hand, with three or four wheels, were known in England at the close of the eighteenth century. The earliest two-wheeled device in the nature of a bicycle appeared in Paris in 1898, while an improvement of the same invention was



THE 'BONESHAKER,' 1870

introduced into England in 1818 by Baron von Drais, of Mannheim, Germany, and was known as the 'draisene' and more popularly as the 'dandy-horse.' It consisted of two wheels, about 30 in. in diameter, one running in the track of the other, and connected by a wooden beam, which supported the saddle. The front of the beam sustained an arm-rest. Propulsion was obtained by the rider sitting astride over the beam, resting his arms on the arm-rest and alternately striking against the ground with his right

and left foot. This machine, however, speedily became the butt of comic writers and caricaturists, among others George Cruikshank, and succumbed to their ridicule. The dandy-horse was developed, however, by Kirkpatrick Macmillan, a blacksmith of Dumfriesshire, who affixed cranks to the axle of the rear wheel and actuated them by long levers. This invention dates from 1840 at latest, but Macmillan's claims were hardly known in his life-time, and the credit of being the originator of the first two-wheeled single-track mechanically propelled machine was given to Gavin Dalzell, a cooper of Lesmahagow in Lanark, who in 1846 produced a copy of Macmillan's machine. The next development of the cycle took place in the seventies. In 1864 a Frenchman, Pierre Lallement, fitted cranks and pedals to the front wheel of the dandy-horse. The



THE 'ORDINARY' BICYCLE, 1887

necessity of maintaining balance naturally led to the introduction of the movable head, which enabled the relative position of the front and rear wheel to be changed and equilibrium maintained. This invention culminated in the high bicycles known as the boneshaker, on account of the vibration caused by its frame being of wood and its wheels shod with iron tyres. At the same time numerous other devices, including tricycles of various types, were placed on the market under the name of velocipedes. The boneshaker attained a widespread popularity and was used extensively by the upper and middle classes of society. It had, however, little advantage over walking, and its discomfort and danger threatened to cause it to be relegated to the long list of obsolete inventions when a new direction was given to its development. Instead of a front-wheel-driven machine, a reversion was made to rear-driven C., with power transmitted by a chain. This was the origin of the modern safety bicycle, and credit for it is due to J. K. Starley, of Coventry, who produced the type in 1885.

The greatest step of all was perhaps the invention of the pneumatic tyre by Thompson in 1848 and its 're-invention' in 1888 by J. B. Dunlop, a veterinary surgeon, which secured permanently the position of the bicycle as a vehicle

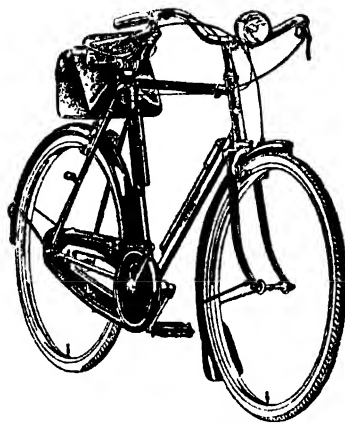
for transport and pleasure. Steadily increasing in popularity, the bicycle underwent an extraordinary boom in the years 1896 and 1897, when company after company was floated. The result was, however, overcapitalisation of the industry, which seriously affected the position of affairs for many years. It would be impossible to record all the innumerable contrivances, many ingenious, many ridiculous, that have been thought of for improving the efficiency of the bicycle. The chain-driven machine was threatened by the bantam bicycle, with front-wheel drive, and by the chainless rear-driven machine. Advocates were found for exceptionally long cranks and exceptionally short cranks. Such devices made no permanent headway, but others firmly established themselves. The tangent spoke diffuses the stress throughout the wheel, and has quite ousted the old direct spoke. Plunger or tyre brakes have given way before the modern rim and hub brakes operated either by fixed rods or cables. The free-wheel has become essential wherever bicycles are used for pleasure riding, though speed riders still adhere to the fixed wheel. Of recent years the fixed gear has been more and more replaced by the variable gear. The variable gear may consist of two, three, or more ratios, changeable among themselves at the will of the rider. Usually, however, it is the three-speed gear that is favoured, the middle gear being the normal and the others being 25 per cent higher and lower respectively. Greater comfort has also been found by the introduction of spring frames, spring forks, spring saddle-pins, and inflated saddles. Front and rear lighting on recent machines is by electricity generated by a dynamo operated from the edge of the tyre or enclosed in the front or rear hub assembly. Gear-cases, enclosing the complete drive (once only found on the lady's cycle), are now universally provided on the more expensive machines. Finality in the shape of the frame itself was long in being reached. The so-called gent's diamond frame has become so familiar that one is inclined to regard it as the permanent form. Originally made with top tube sloping upwards towards the head, it has now long been made with the same tube sloping downwards, or horizontal. Numerous attempts have been made to replace it by a so-called triangulated frame, in which all tubes form the side of a triangle. The underlying principle of this kind of frame is that the triangle is mechanically a rigid figure, whereas the quadrilateral is not, and the quadrilateral frame therefore throws greater strain upon the lugs which unite the various tubes. Complete triangulation has, however, the disadvantage of producing a bicycle which is rather too rigid, and though attempts to obviate this have been made by introducing curved tubes, the expedient has never met with favour. Mention must also be made of the so-called cantilever frame, in which the principle of triangulation has been employed with good results, but this type is

not popular. The lady's machine is less satisfactory from the engineer's point of view, as the cross-bar is omitted. Women cyclists, however, now favour a rational dress. Tricycles still have their adherents, but the 'safety' bicycle is now the normal type of machine. Tandem bicycles for two persons are also seen. An attempt was made some years ago to place on the market a tricycle for two persons, called the 'sociable,' with saddles side by side, but the machine did not hold its place. The development of the motor industry has naturally led to the introduction of the motor-cycle, for which the reader is referred to the article *MOTOR-CYCLES*.

Manufacture.—Generally speaking the manuf. of C. is a home industry. At the end of last century an attempt was made to place large quantities of Amer. machines upon the Brit. market, but without lasting success, and Brit. machines have now a monopoly of the home market. The better grade Brit. bicycle is sold in considerable numbers upon the Continent. There is also a large export from England all over the world. The cycle industry in England is principally carried on at Nottingham and Birmingham.

Cycling as a Sport.—Cycle-racing, both amateur and professional, was for many years a highly popular form of sport, and many tracks were laid down all over the country. The racing is controlled in England by the National Cyclists' Union (founded in 1878), a body consisting of a number of affiliated clubs, with a small private membership of its own. This body holds the amateur championships, defines the status of the amateur, and frames rules for contests. Similar clubs exist in Scotland and Ireland, viz. the Scottish Cyclists' Union (Glasgow) and the Irish Cycling Association (Dublin). The N.C.U., owing to the decline of cycle-racing, has developed along the lines of the Cyclists' Touring Club (founded in 1878). The decline of cycle racing was to a great extent due to cycle meets being used by the manufacturing firms, aided by 'makers' amateurs' and organised pacing teams, for the purpose of advertising particular makes of C. This difficulty was obviated by the Road Racing Council, and those taking part in races promoted by the council were forbidden to use their events as advertising matter. The N.C.U. also deprecate the practice. There were further causes, however, to account for the decline of interest in cycle-racing. In long-distance events the winner owed his triumph more to possessing the best team of pacers than to his own ability, while in short-distance events the fact that the leader set the pace for the others and was almost invariably beaten in the final sprint for the post led to a series of 'loafing' contests that soon damped public interest. Attempts to meet the latter difficulty were made by introducing the lap to lap contest, where the winner was determined by finding which rider led at most of the laps. The tendency was, however, more and more in the direction of holding road competitions, in which all forms of pacing were strictly forbidden.

Professional races, in which high-power motor C. were used for pacing, are in greater favour on the Continent and in America than here, and surprising speeds have been obtained. The Fr., Belgians, Dutch, and Its. have developed racing events greatly, both on roads and circular tracks. Many of the large football grounds on the Continent have concrete tracks, heavily banked on corners. The Tour de France race is a notable ann. event in which cyclists from many countries compete, a favourite branch of the sport being the attempt to establish road records between various points. The most famous of all Brit. records is, perhaps, the Land's End to John o' Groat's House record. The distance is



The Raleigh Cycle Co. Ltd.

A MODERN CYCLE

approximately 900 m., and was accomplished by H. Green in 1908 in 2 days 19 hrs. 50 min., by H. Opperman in 1934 in 2 days 9 hrs., and by S. H. Ferris in 2 days 6 hrs. 33 min. in 1937. Such a feat could, of course, only be performed by help of elaborate arrangements for feeding and securing fresh mounts where necessary, while the rider had to follow a carefully prepared schedule of times. Another favourite form of competition is the hill climb, the best known among which in Britain is that organised by the Catford Club and held annually on Westerham Hill in Kent. Road records are: London-Brighton and back (106 m.), 4 hrs. 38 min. 27 sec., F. W. Southall, 1935. London-Bath and back (212 m.), 10 hrs. 7 min. 36 sec., R. Kemps, 1939; 10 hrs. 50 min. 53 sec., Miss M. Wilson, 1939. London-York (196½ m.), 8 hrs. 23 min., H. Earnshaw, 1939; 10 hrs. 42 min. 25 sec., women's tandem, Misses A. Calcy and M. Gallacher, 1937. London-Edinburgh (392 m.), 18 hrs. 57 min., C. Hoppieston, 1938. London-Land's End (300 m.), 17 hrs. 28 min., C. F. Davey,

1923. Land's End-London, 13 hrs. 44 min., C. Holland, 1939; 17 hrs. 9 min., Miss M. Wilson, 1939. Land's End-John o' Groats (900 m.); 2 days 22 hrs. 52 min., Miss M. Wilson, 1939. Fifty-m. road: 1 hr. 39 min. 42 sec., H. Earnshaw, 1939; 1 hr. 56 min. 33 sec., Miss M. Wilson, 1941. 100-m. road: 3 hrs. 45 min. 51 sec., H. James, 1939. 12 hrs.: 276½ m., H. Earnshaw, 1939. 24 hrs.: 467½ m., C. Heppleston; 396½ m., Miss M. Wilson, 1939; (in Australia), 489 m. 596 yds., H. Opperman, 1940. 24 hrs. N. Road: 390½ m., E. R. Wilkinson, 1938. 1000-m. (Britain): 2 days 22 hrs. 40 min., S. H. Ferris, 1937; 3 days 11 hrs. 44 min., Miss M. Wilson, 1939. (Australia): 2 days 15 hrs. 37½ m., H. Opperman, 1938. Tandem (25-m. road): 59 min. 27 sec., Joyce Dean and Eileen Jordan, 1942. Other records: 1 hr., C. Mariner (England), 26 m. 1020 yds., 1947; 1 m., A. Coulet (Australia), 1 min. 51 sec., 1912; 1320 yds., P. Lawrence (U.S.A.), 1 min. 23.6 sec., 1938; 1 kilometre, F. Ballesine (Italy), 1 min. 4.6 sec., 1938; 830 yds., A. J. Clark (Australia), 50.8 sec., 1938; 500 metres, L. Michael (Fr.), 29.8 sec., 1932; 440 yds., J. Lawson (U.S.A.), 23.8 sec., 1906.

Cycling in Warfare.—The cyclist before 1914 proved his military value rather by experience gained in manoeuvres than in actual warfare. His value may be considerable where good roads are to be found. An early type of army cycle was the quadricycle, mounted with a machine gun, but solo C. are now the general rule. The Fr. Army have a cycle with folding frame which can be carried on the back when not in use. At the commencement of the First World War in 1914 the War Office realised the value of the cycle, and what had hitherto been a section attached to an infantry unit became the Army Cyclist Corps. In the Second World War sev. armies produced folding C. for the use of their parachute troops.

See A. Davis, *The Velocipede: its History and Practical Hints how to use it*, 1869; R. J. Mcreedy and G. Stoney, *The Art and Pastime of Cycling*, 1895; H. G. Wells, *The Wheels of Chance*, 1896; S. Wright, *Everybody's Cycling Law*, 1903; W. F. Grew, *The Cycle Industry*, 1921; G. H. Stancer, *Tips for Cyclists*, 1925; W. Fitzwater Wray, *The Kuklos Papers*, 1927; J. T. Lightwood, *The Romance of the Cyclists' Touring Club*, 1928; K. Thorenfeldt, *Round the World on a Cycle*, 1929; H. W. Bartleet, *Bartleet's Bicycle Book*, 1931; N. Spencer, *The Art of Cycling*, 1948. Jours.: *The Cycling Manual* (annual); *Cyclists' Touring Club Gazette* (monthly to members), 1878; *Cycling* (weekly), 1891; and *The Cycling Record* (monthly), 1947.

Cyclitis, inflammation of the ciliary body. See EYE.

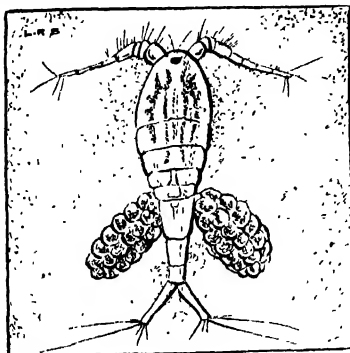
Cyclograph, also arcograph or curvograph. Instrument for drawing a curve without reference to the centre. It is usually formed of an elastic strip, which is adjustable to a given curve, and serves to transfer the latter to another plat or another place on the plat.

Cyclone. If a portion of the earth's surface becomes more heated than the surrounding parts, the air above this part will expand, rise, and spread outwards in all directions. Within this area the barometric pressure will be lessened and outside increased; so there will be a flow of air from the outside inwards, to the area of low pressure. As the inner air rises it becomes cooler and the moisture in it condenses, latent heat is liberated, and the ascending current becoming more rarefied increases the draught, moist air flows in an ever-increasing volume, and so we have the beginnings of a storm. The area of low pressure with its winds is called a C. Cs. are never stationary, but move outwards in the direction of the prevalent winds. In the tropics their course is westward towards the poles, and in the temperate zones eastwards, with the antitrade winds. The greater the difference between the pressure in the region of low pressure and the outer edge, the more violent is the storm. In the N. hemisphere the whirling motion of the C. is opposite to the direction of the hands of a watch, while in the S. hemisphere it is in the same direction. In the centre of the C. there is a comparative calm, while as it moves towards the poles the region of low pressure gradually spreads until the storm dies away. Cs. move rapidly, while anticyclones move more slowly. They bring certain weather changes with them. As they approach halos form over the sun and moon, followed by dense cloud formation. Mist is succeeded by rain, which becomes heavier as the region of low pressure passes, and this is followed usually by cool, dry, bracing winds with a bright sky. See ANTICYCLONE.

Cyclopes (Gk. κύκλωπες, round-eyed, from κύκλος, circle, and ὤψ, eye), fabulous race of classical mythology. According to Homer they were a lawless band of Sicilian shepherds, gigantic in size, who set Zeus at naught and caught and devoured human beings. Their king was Polyphemus, who had only one eye; hence the whole race were described by subsequent writers as one-eyed. According to Hesiod, they were three in number, their names being Argos, Brontes, and Steropes. They were the sons of Uranus and Gaia (or, according to Rom. mythology, Coelus and Terra), and were Titans. They were hurled into Tartarus by Chronos (Saturn), but they were delivered by Zeus, whose servants they then became, and for whom they forged thunderbolts and armour. They also fabricated a shield for Pluto and a trident for Neptune. Ultimately they were destroyed by Apollo, because they had forged the thunderbolt with which Zeus had killed Æsculapius. According to a later tradition, owing to their vicinity to certain volcanoes, they were regarded as the servants of Hephæstus (Vulcan), in whose workshops in Ætna, Lemnos, and Lipari they forged metal armour and ornaments for gods and heroes. The C. were regarded as gods, and a temple dedicated to their worship stood in Corinth. The impenetrable walls of Mycenæ and of

other Gk. tns. were called 'cyclopean' on account of their strength. According to Strabo, the C. were builders from Thrace or Lycia, who settled in Argolis.

Cyclops, genus of copepod crustaceans, represents the fresh-water family Cyclopidae. The species are very numerous and minute.



CYCLOPS

Cyclopteridae, see DISCOROLI.

Cyclostomata (Gk. *κύκλος*, circle, *στόμα*, mouth), or **Marsipobranchii**, name given to a class of vertebrate animals usually grouped with the *Pisces*, or fishes, but separated from them by various characteristic features. The species are eel-like and generally marine, with a gristly skeleton, persistent notochord, scaleless skin, jawless sucltorial mouth, straight intestine, simple tubular heart, and paired gill-sacs as the organs of respiration. The smooth skin is very slimy, and the sucltorial mouth is used as an organ of attachment when the C. fix themselves to their prey. They dwell in the depths of the sea or in rivs., and are predaceous or parasitic in habit. The two best known species are *Myxine glutinosa*, the common hag-fish, and *Petromyzon fluviatilis*, the fresh-water lamprey. They occur in temperate regions of both hemispheres, are found in fossil from Paleozoic times, and in length vary from a few in. to 2 ft.

Cyclotron, machine for producing a stream of electrically charged atoms travelling at an enormous speed. It consists of an evacuated enclosure lying between the flat, circular pole pieces of a large electromagnet, and having a pair of flat plates normal to the pole pieces and lying close to, and on either side of a diameter of the circle formed by them. An alternating electric field is set up between the plates, and charged atoms are released between them. The electric field accelerates each atom to a high speed, and after this has passed out of the region between the plates the magnetic field causes it to travel in a circular path about the axis of the pole pieces of the magnet. After it has traversed a semi-

circle the atom is again in the space between the plates, and if the electric field is now reversed the atom is not retarded, but is further accelerated. It now traverses another semicircle of larger radius, returning to the space between the plates at a time when the electric field has again been reversed, and receiving a further impetus. In this way the speed of a stream of charged atoms is gradually built up until their velocity is enormous, and they are travelling near the edge of the circular enclosure. The stream is allowed to pass out at one point near the edge, and to fall on a target of a suitable material, where it produces atoms of other elements (see **ATOM**, **ATOMIC STRUCTURE**). Many of the atoms formed by the collisions at the target are radioactive. In this way radioactive types of elements such as phosphorus can be produced. These are of value for the information they afford about processes occurring in living organisms, for if they are mixed with food the subsequent hist. of the atoms can be followed by observing their radioactivity. Concentrated radioactive materials can also be accumulated for other purposes such as the treatment of cancer, etc.

Cygnus. 1. Son of Apollo, metamorphosed into a swan. 2. Son of Poseidon, and father of Tenes and Hemitheia. C. was king of Colone in Troas. His second wife was Philonome, who fell in love with her stepson; but as he repulsed her advances, she accused him to his father, who put both his son and daughter in a chest, and threw them into the sea. But the chest was driven on the coast of the is. of Leucophrys, of which the inhab. elected Tenes king, and which he called Tenedos, after his own name. In the Trojan war C. was slain by Achilles. 3. Son of Sthenelus, king of the Ligurians, and a friend and relation of Phæthron, was metamorphosed by Apollo into a swan, and placed among the stars.

Cydnus, riv. of Cilicia, rising in Mt. Taurus and flowing past Tarsus and a broad lagoon, now clogged up by sand, into the Mediterranean Sea. Its water was famous for its coldness, and Alexander nearly lost his life through bathing in it when overheated.

Cydonia, sometimes considered as a separate genus and sometimes included in *Pyrus*, belongs to the Rosaceæ. *C. vulgaris* (or *P. Cydonia*) is the quince, a plant which bears irregularly shaped masses of fruits. These frequently adhere to one another owing to the mucus which invests them, and the seeds are used medicinally on account of the mucilage which they yield. *C. (or P.) Japonica* is another species, frequently grown as a wall-plant.

Cydwel, see **KIDWELLY**.

Cygnus ('the Swan'), constellation, comprising about 200 stars visible to the naked eye, which lies between Pegasus and Draco. The N. Cross is formed by eight of the prin. stars in C. The constellation, the brightest star of which is a Cygni (magnitude 1.6), contains many objects of interest, not the least being

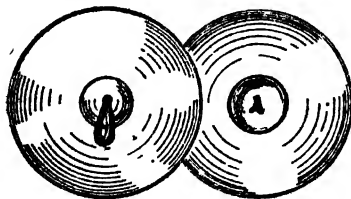
the star 61 Cygni, a star of the fifth magnitude. This star was the first to have its parallax (i.e. its distance from the earth) calculated. This was done by Bessel in 1838, who announced for it a parallax of $0.32''$. This has since been reduced to $0.24''$, which corresponds to a light-year distance of $13\frac{1}{2}$.

Cylinder, surface traced out by a line moving parallel to its original direction and always passing through the circumference of a curve. The term is also applied to the solid contained by the surface and two parallel planes intersecting it, and in particular to a right circular C. which may be described by the revolution of a rectangle about one of its sides. The C. is a developable surface, i.e. it may be rolled out to form a plane surface. The section of a right C. formed by cutting the solid by a plane at right angles to the parallel surfaces is a circle, an oblique section gives an ellipse. The volume of a right C. is obtained by multiplying the area of the circular base by the height, that is, volume = $\pi r^2 h$, where $\pi = 3.1416$ (approximately), r = radius of base, and h = height. The area of the curved surface is obtained from the formula $2\pi rh$, or the circumference of the base multiplied by the height.

Cyllarus, a beautiful centaur, killed at the wedding feast of Pirithous (q.v.). The horse of Castor was likewise called C.

Cyllene: 1. The highest mt. in Peloponnesus on the frontiers of Arcadia and Achaia, sacred to Hermes, who had a temple on the summit, was said to have been b. there, and was hence called C. 2. Seaport tn. of Ellis (q.v.).

Cylon, Athenian who lived in the seventh century B.C. He was victor at the Olympic games, and after that tried to make himself tyrant of Athens, taking possession of the Acropolis during a festival. He and his followers were closely besieged, however, and finally fled to the altar of Athena for refuge. Megacles persuaded them to leave this altar, to which they are said to have attached themselves by a string. On doing so they were murdered by their enemies at the altar of Eumenides, according to tradition, on account of the breaking of the string.



CYMBALS

Cymbals (Lat. *cymba*, hollow vessel), pair of thin, round, metal plates, hollowed in the centre, with a leather strap attached by which to hold them. The sound is obtained not only by clashing them

together but by rubbing their edges. It is very loud and harsh and indefinite in pitch. In orchestras they are often used in connection with the bass drum. The original C. were probably very different in tone, with more of a bell-like sound. Their use is very ancient; they were known among the Egyptians, and were used by the Gks. in the worship of Cybele.

Cymbeline, king of ancient Britain, who appears in Shakespeare's play of the same name, in which play he is the father of Imogen. Cunobelinus, who lived during the first century A.D., seems to have been the original of C. The former is mentioned in Holinshed's *Chronicles*, and coins bearing his name are still in existence.

Cyme, botanical name given to an inflorescence in which each branch is stopped in its growth after producing a single flower, when it is forced to form lateral branches, which are themselves stopped after forming one flower.

Cymry, see under CELTS.

Cynægius, brother of the poet Æschylus, distinguished himself by his valour at the battle of Marathon (q.v.). According to Herodotus, when the Persians were endeavouring to escape by sea, C. seized one of their ships to keep it back, but fell with his right hand cut off.

Cynanchum, genus or the order Asclepiadaceæ. *C. vincetoxicum* is a native of sandy places on the Continent, and was once celebrated as an antidote for poisons. *C. monspeliacum*, or Montpellier C., contains a juice which is a drastic cathartic; *C. argel* is a native of Upper Egypt, and the whole plant acts as a powerful purgative; *C. ovalifolium* is found in Penang.

Cynara, Mediterranean genus of composite plants, contains the two well-known plants, the artichoke and the cardoon. *C. scolymus*, the artichoke, has long been cultivated as a kitchen garden plant. *C. cardunculus*, the cardoon, is eaten like celery.

Cynares, one of the subdivisions of the order Compositæ. Its type is the genus *Cynara* (q.v.), and the species are noted for the intensely bitter principle of their active properties. *Carduus nutans*, the musk thistle, is the only species possessing much odour, and, like *C. crispus*, it is a true thistle; *Carthamus tinctoria*, the safflower, and *Serratula tinctoria*, the saw-wort, yield yellow colouring matters, while from the flowers of *Centaurea cyanus*, the corn-flower, a blue pigment is obtained. *Arctium lappa*, the burdock, has hooked involucre leaves, and its tender sprouts are eaten like asparagus in N. Europe; *Cnicus tuberosus*, a thistle-like plant, has edible and starchy tubers, and its ally, *Cnicus arvensis*, the plume-thistle, contains much tannin. *Onopordon acanthium*, the Scotch or cotton-thistle, is used as an astringent in medicine; *Echinops sphærocephalus* has cathartic properties. *Carlina vulgaris* is the carline thistle.

Cynesis, or Cynetes, a people, according to Herodotus, dwelling in the extreme W. of Europe, beyond the Celts, apparently in Spain.

Cynewulf, A.-S. vernacular poet, of whom very little is known. He appears to have been a Northumbrian, but the point is not certain. Dietrich has identified him with C., bishop of Lindisfarne (737-80), though this supposition is opposed by Ten Brink. His works are attributed to the latter half of the eighth century. The only ones that can with certainty be ascribed to him are *Juliana*, *Crist*, *Elene*, and a fragment of *The Fates of the Apostles*, in each of which he has inscribed his own name in runes. He also appears to have been the writer of at least part of the *Riddles*, while the *Phoenix* is almost certainly his work. *Guthlac*, *The Dream of the Rood*, *The Descent into Hell*, and *Andreas* are also attributed to him, but their authorship is doubtful. The poet belonged to the Guild of Wandering Gleemen, and appears to have led a very varied existence knowing both trouble and triumph. His works show great mastery of language and are rich in poetic fire and religious fervour. They deal with biblical and religious subjects. See C. W. Grein and R. P. Wülker's *Bibliothek*, which contains the poems mentioned, 1881-38; R. P. Wülker, *Grundriss der Angelsächsischen Literatur*, 1883-85; Stopford Brooke, *English Literature to the Norman Conquest*, 1898, which contains trans. of the *Riddles*; F. Holthausen, *Elene*, 1905; K. Jansen, *Die Cynewulf-Forschung von ihren Anfängen bis zur Gegenwart* (Bonner Beiträge zur Anglistik), 1908; C. W. Kennedy, *The Poems of Cynewulf: Translated into English Prose*, 1910 (with bibliography); and K. Sisam, *Cynewulf and his Poetry* (Brit. Academy Lecture), 1933.

Cynics, The, sect. of Gk. philosophers, founded by Antisthenes, the disciple of Socrates, about 400 B.C. Their name is derived either from the place where they usually taught, the Cynosarges, or from the word *κύων*, 'a dog,' in derision of their morose, snarling principles, and intense scorn for all the conventions and even humanity at large, for the early Cynic virtue alone was the *summum bonum*, and therefore both learning and pleasure were things contemptible, and this doctrine led the decadent followers of Antisthenes, forgetful of the saving grace of self-control, to degrade human life to a mere brutish level. Diogenes of Sinope, Crates, and Zeno are representatives of the earlier Demetrius and Demonax of the later school.

Cynocephalus, see BABOON.

Cynodon, a small genus of Gramineæ, is found in Australia. *C. dactylon*, the dog's tooth, or Bermuda grass, is, however, world-wide in distribution, and in England grows on the shores of Devon and Cornwall. *C. linearis* is the duryagrass of the E.

Cynoglossum, genus of tropical and sub-tropical plants belonging to the Boraginaceæ. All the species are coarse plants with small flowers unworthy of cultivation. *C. montanum*, a Brit. species, grows in shady situations, by roadsides, and in hedges; *C. officinale*, the common

hound's tongue, is a native of Asia, Africa, Europe, and N. America. The whole plant has a disagreeable smell, resembling that from mice, and was formerly used medicinally as a remedy in scrofula.

Cynoidea, one of the sections of the Carnivora (*q.v.*), and consists of dog-like animals. There is a single family, the Canidæ, and the species are distributed over the whole world, with the exception of New Zealand, and many of their fossil remains have been found. The fox, wolf, dingo, prairie wolf, and all varieties of dogs, wild or domesticated, belong to this group.

Cynomorium Coccineum, the single species of its genus in the order Balanophoraceæ, is a Mediterranean plant. By old herbalists it was called *Fungus melitensis*, and was valued for its astringent properties, but it is now a rarity and an object of curiosity to botanists. The discovery of the medicinal properties of this parasitic plant dates from remote times, and in 1740 the knights of Malta set so high a value on it that they guarded the passage to the spot where it grew with the strictest jealousy.

Cynosarges, gymnasium, sacred to Hercules, outside Athens, for the use of those who were not of pure Athenian blood; here taught Antisthenes, the founder of the Cynic school. See —. Tucker, *Life in Ancient Athens*.

Cynosephalæ (dogs' heads), two hills of Thessaly in Greece, near Larissa. Here in 197 B.C. the Rom. consul, Flamininus, defeated Philip of Macedonia.

Cynossema, 'dog's Tomb,' promontory in the Thracian Chersonesus, so called because it was supposed to be the tomb of Hecuba (*q.v.*), who had been previously changed into a dog.

Cynosure (Gk. *κυνόσουρα*, a dog's tail), Gk. name for the constellation of the Little Bear, which contains the Pole Star. The Phœnician mariners steered their course by this constellation, while the Gks. steered by the Great Bear. The name has been transferred to anything attentively observed.

Cynosurus Cristatus, the crested dog's-tail grass, or gold-seed, is a well-known pasture-grass of the old world, and flourishes in Britain. The roots penetrate a great way underground and the plant thus remains green in dry weather when other grasses are burnt.

Cynthia (Gk. *Κυθία*), one of the many names of the Gk. goddess Artemis, and obtained from Mt. Cynthus. Identified by the Romans as Diana.

Cynthus, mt. of Delos, celebrated as the bp. of Apollo and Artemis, who were hence called Cynthus and Cynthia respectively.

Cyprissus, son of Telephus (*q.v.*), who having inadvertently killed his favourite stag, was seized with immoderate grief, and metamorphosed into a cypress.

Cyperaceæ, extensive natural order of glumaceous monocotyledons, having much the appearance of grasses. In England a large number of the species are called sedges, and are employed in the manufacture of 'rush' mats and bottoms for chairs.

Although allied to the grasses, they have scarcely any nutritious qualities, and are almost valueless as herbage. *Scirpus lacustris*, the bulrush, and *Cyperus papyrus*, the paper-reed, are common species.

Cyperus, genus of the order Cyperaceæ, which contains about 700 species of rush-like plants. They flourish in damp climates, need a great deal of water, and form a large proportion of the flora of cold regions. In the S. states the tubers or rhizomes are used as food for swine. *C. papyrus*, the paper-reed, furnished the writing-paper of ant. times known as papyrus.

Cyphergat, mining vil. of Cape Prov., S. Africa. It is situated S. of Moltono, and is principally engaged in coal-mining.

Cypræidea, family of gastropod molluscs which contains the cowry (*q.v.*). The species are often large and beautiful, and most of them dwell in warm seas. Besides the existing species, of which there are two or three hundred, fossil remains have been discovered from the Upper Jura.

Cy-près, term used in connection with charitable trusts or uses (*q.v.*). Where an instrument creating a trust discloses an intention to benefit charitable purposes generally, or, as it is called, a 'general intention of charity,' without mentioning any particular charity or charitable purpose; or specifies a particular charitable purpose which either cannot be carried out, as for example, where an institution intended to be benefited has ceased to exist, or which does not exhaust the whole of the trust fund, the chancery div. will itself declare the charitable purpose to which the trust fund or surplus (as the case may be) is to be devoted; and in so doing it will effectuate the settlor's intentions as nearly (*cy-près*) as possible. Where it is impossible to carry out any charitable purpose approximating to that in the mind of the settlor, the court may construe the settlor's intention by the light of other charitable trusts (if any) in the same settlement. See Strahan, *On Equity*; and Snell, *On Equity*.

Cypress, or **Cypressus**, genus of coniferous plants, of which all the twelve species are evergreen shrubs or trees, and are natives of N. America, the Mediterranean, and Asia. *C. sempervirens*, the common or upright C., is a plant of gloomy aspect but fragrant smell; it is sometimes cultivated in Britain, but the climate is too damp and cold for it to flourish. It has been identified as the C. of the Scriptures, and the cross of Christ is believed by some to have been made from this tree; but, on the other hand, the Heb. word for the C. of Scripture, *tzrah*, is derived from *taraz* connoting 'strength,' so that there is means of identifying it, and indeed the Heb. word for C. is *beroah*, often trans. cedar or fir. The variety *C. horizontalis*, the spreading C., is a more hardy plant than the common C., but its graceful spreading branches make it a beautiful object. *C. lusitanica*, the cedar of Goa, is a drooping species, and its leaves have a singularly glaucous

colour. *C. funebris* is a native of China and bears weeping branches; *C. Lawsoniana* grows in Upper California and yields good timber; *C. fragrans* is often cultivated, but occurs wild in N. America; *C. macrocarpa*, the Monterey C., is a hardy species found in California; *C. nootkalensis* (from Nootke Sound) grows in N. America, attaining a height of over 100 ft.

Cyprian (**Cyprianus**) **Thascius Cecilius** (c. A.D. 200–58), an illustrious father of the Church, was b. of heathen parentage, but in 245 was baptised as a Christian. Like St. Francis, overcome by his passionate altruism, he freely gave all his wealth to the poor, so that the 'acclamation' and 'friendly violence' of the whole city obliged him in 248 to accept the important bishopric of Carthage, yet when the Emperor Decius began his ruthless persecutions in 250 C. was exiled everywhere with pagan cries of 'Cyprianum ad leonem,' so that he sought safety in flight. On Gallus's accession he returned to Carthage in 251, and was soon engulfed in grave theological discussions, such as the question of the re-baptism of heretics and the readmission into the Church of the *lapsi*, those who had fallen away during the recent persecutions. C. was inclined to view their lack of faith with lenience, whilst Novatian wished nothing less than their entire exclusion. From C.'s letters the reader obtains a lively picture of the struggle of the Christian Church in its infancy, and the bitter animosities aroused by questions of eccles. doctrine and discipline, but also — what is surely of equal interest — an insight into the poetic feeling and tenderness of the writer, whose character has been so often misjudged. 'The pleasant aspect of the garden,' says C. on one occasion, 'harmonises with the gentle breezes of a mild autumn in soothing and cheering the senses; the neighbouring thickets insure us solitude; and the vagrant trailings of the vine branches, creeping in pendant mazes among the reeds supporting them, have made for us a leafy shelter. 'Tis with delight that here we clothe our thoughts with words.' It is clear that in C.'s day there was no recognised supremacy for the bishop of Rome, for he does not hesitate to dispute with his 'brother' Stephanus, and in 256, at a synod in Carthage, he openly declared that he recognised no judicial authority of the Rom. over the other Christian bishops, who were substantially his equals. On the proclamation of Valerian as emperor in 258, C. was obliged once more to desert his flock. In the same year he bravely and gladly suffered martyrdom. 'God be thanked!' he cried on hearing his sentence. Thus he was faithful to his fine principle that 'a priest of God . . . may be put to death but cannot be overcome,' for he proudly refused to sacrifice at the emperor's bidding. His whole life was sanctified by the ardour of his faith and the nobility of his self-denial, whilst his death for Christianity effectually atoned for any earlier taint of cowardice. His *De Catholicæ Ecclesiæ Unitate* is of peculiar interest, as herein

is first enunciated that the Christian Church is an hierarchy whose unity rests not on the episcopate of Rome but on that of the universal Church.

Cyprinidae, a very large and much subdivided family of fishes of the group Ostariophysi, is typified by the carp. The species are bony fishes with scaly bodies, naked heads, and no teeth. They are to be found in fresh water of the old world and N. America, and about 1300 have been classified. Their diet is chiefly vegetarian, but a few are animal-feeders. The carp, goldfish, minnow, dace, loach, chub, roach, tench, and fresh-water bream are a few well-known representatives of the family.

Cyprinodontidae, a family of pike-like fishes in the sub-order Haplomi, somewhat resemble carps, but have teeth in both jaws, no barbels, and the head and body are covered with scales. The most curious genus is *Anableps*, in which the iris of the eyes has two pupils; the fishes swim with the head half out of the water, and the lower pupil is adapted for sight in water, the upper for aerial vision.

Cypripedium, a genus of the Orchidaceae, contains over fifty species of graceful and beautiful plants, mostly inhab. of N. America and N. India. They include in a curious method of pollination, which is effected usually by bees. *C. Calceolus*, the lady's-slipper orchid, is found rarely in woods of N. England. It has a creeping rhizome, broad ovate leaves, and the perianth is reddish-brown in colour. The labellum, however, is yellow and slipper-like, the edges being turned inwards.

Cyprus, third largest is. of the Levant in the Mediterranean, 60 m. W. of Latakia, in Syria, and 46 m. S. of Cape Anamur in Asia Minor. Lies between N. lat. 34° 33' and 35° 41', and E. long. 32° 20' and 34° 35'. With a length of some 145 m. and an average width of 45 m., its total area is about 3572 sq. m. It is an attractive country of plain and mt. surrounded by blue seas and wide skies. The headland on the N.E., Cape St. Andreas, forms the extremity of a long and narrow peninsula. The extremely fertile plain of the Mesaoria stretches across the centre of the is. Once sheltered by dense forests, its surface presents to-day a bare and treeless appearance, broken here and there with curious rock tablelands from 100 to 200 ft. high. Of the S. and N. littoral ranges, the former, known as the Olympics, contains the higher summits. Thus Troödos attains an elevation of 6406 ft., the greatest in C. The N. system is divided into two chains, the W. and loftier, known as the Kyrenia Range, the highest peak of which is Buffavento (3140 ft.) and the E. or Karpas Range, which rarely reaches an altitude above 2000 ft. Mt. Adelphi (5305 ft.), Papoutsa (5124 ft.), and Chionia or Machaira (4674 ft.) are the other chief mts. of the S. chain, whose numerous spurs extend over a third of the is. in the S.W. There are modern summer resorts at an elevation of 6000 ft. as high as the Engadine in

Switzerland which are being developed as holiday centres for tourists and European officials in the Near E. The Pedia, which falls into the sea at Famagusta and waters the valley of Nicosia, and the Idalla both flow N. and then E. through the central plateau. In the N.W. the chief stream is the Saraklis. But unfortunately these and the other waterways of C. are little more than mt. torrents, whose beds dry up in the summertime. Even the Pedia fails at times to reach the ocean, and the marshes formed from its stagnant waters give rise to malaria. Ipecud fevers are prevalent among the natives in the low-lying



Nancy Jenkins

VILLAGE SCENE IN CYPRUS
A priest of the Autocephalous Church.

quarters. But on the whole the climate of C. which is naturally Mediterranean in character, is fairly healthy. The winter, which extends from Oct. to March, is also the wet season, the mean ann. precipitation being 19 in. Whilst the mean maximum temp. for a year is 78° and the mean minimum 57°, the average ann. temp. is about 69° F. The is. is subject to earthquakes and to the devastations of locusts, for the increase in which the excessive deforestation is largely responsible. Forests still cover 400 sq. m., but in ant. times they were one of the chief glories of C., clothing every mt. ridge and all the plains with dense masses. The Gks. found the Aleppo pine, which, with other conifers, largely predominates, excellent for shipbuilding. In the N. Eocene formations are prevalent, whilst in the plain of Mesaoria are many calcareous rocks alternating with Pliocene deposits. Archean rocks form the mass of the Olympics, which yield gypsum, red jasper, a little silver and gold, asbestos and copper. Once C., which gives the modern name to the metal, was

famous for its copper mines, but it is not found worth while to work them now. The chief metals obtained for commerce are 'terra umbra', gypsum, and salt, which is worked in the Limasol and Larnaca dists., where there are great salt lakes. But statuary marble is quarried on Buffavento, and a good building stone is quite widely distributed. Unfortunately agriculture is still backward. Ignorance and prejudice prevent the cultivators systematically adopting such improvements as rotation of crops, modern implements and machinery, etc., but great efforts have already been made to induce the peasants to adopt more modern methods. The difficulties are, however, aggravated by the fact that the majority of the cultivators are heavily indebted and usually in arrears with their payments. The Brit. administration is pursuing a policy directed to the consolidation and lightening of land mortgages—apart altogether from the help given to agriculture by improved irrigation. A good deal of the necessary irrigation is carried out by wells, but in 1899 and 1901 respectively two schemes for irrigating by means of reservoirs were carried out, the larger enabling the flood waters of the Pedia and Idalia to be temporarily held up. Cotton, carobs, wheat, barley, oats, vetches, cummin, pulse, linseed, wool, silk, tobacco, flax, madder, the poppy, olives, and the vine are grown, besides figs, oranges, citrons, and dates. The native wines are pure and strong, though not always agreeable to the taste. The practice of keeping the wines in tarred skins—a practice very injurious to their flavour—is now practically non-existent. The silk industry flourishes in the Paphos dist., and the sponge fisheries are profitable. The Cyprian breed of mules is famous in the E., and there is an indigenous wild sheep known as the moufflon.

Chief exports are animals, carobs, wheat, raisins, oranges, almonds, cheese, wine (1,600,000 gallons in 1937; 988,700 in 1946), spirits, potatoes, hides and skins, leaf tobacco, pine bark, cummin seed, artificial teeth, wool, and buttons. Mineral exports include asbestos, cupreous concentrates, pyrites, chromium ore, terra umbra, and gold ore. The chief imports are beans and peas, cereals, oils and fats, sugar, rice, petroleum, cotton yarns and piece goods, artificial silk goods, woollen piece goods, chemicals, medicines, lubricants, kerosene, chemical manure, leather, tyres, and cement. The agric. and other resources of the is. are capable of considerable expansion. Mining products exported include pyrites, copper ore, asbestos, yellow ore, and gypsum. The chief tns. are Nicosia (pop. 34,400), the cap., in the interior, and the two ports, Limassol (22,700) and Larnaca (14,700), both on the S. coast. Other tns. on the coast are Kyrenia (2900), Paphos (5800), and Famagusta (16,100) on the E. coast near which is the act. Salamis. The six administrative dists. are Famagusta, Kyrenia, Larnaca, Limassol, Nicosia, and Paphos. Lack of natural harbours, the

seaports all having open roadsteads, militates against trade, but a good harbour was constructed at Famagusta at the same time that a railway was built to connect that tn. with Nicosia, and plans have been made to extend and modernise the harbour to serve as a naval base. Larnaca Bay is also under consideration for a base for the Mediterranean fleet, the estimated cost being £8,000,000. The main roads between the various cities are good. Cable lines connect Larnaca with Alexandria in Egypt, and also with Latakia in Syria. Turkish weights and measures are current. Coinage is pounds, shillings, and C. piastres (180 C. piastres equal 20s. or £1 sterling).

A short résumé of the hist. of C. will serve to indicate the many vicissitudes through which the is. has passed. The Phœnicians colonised it about 2000 B.C. and much later the Gks. sent settlers to C. (but did not occupy it), and instituted the worship of the Paphian Venus in place of that of the Phœnician Astarte. For a short time the is. passed into the hands of Amasis of Egypt, and in the same century, in 525 B.C., Cambyses of Persia annexed it to his empire. Alexander, after his victory of Issus, affiliated the is. to his Macedonian kingdom, but on his death it was transferred to Ptolemy of Egypt. C. became a Rom. prov. in 58 B.C., and among its governors counted Cicero and Cato the younger. Paul, Barnabas, and Mark all visited the is., the Cypriots being one of the first Gentile peoples to adopt Christianity. Under the E. or Byzantine emperors C. became the seat of an archbishopric. From 644, the year of Othman's conquest, until 975, the is. was devastated by repeated Arab invasions, that of Haroun el Raschid, for a time successful, occurring in 802. From 1195 to 1487, the year when it entered the dominion of the Venetian republic, it was ruled by the family of Guy de Lusignan, who received the is. from Richard I., who conquered it on his way to the third crusade and ruled it for seven years. From 1570 to 1878 C. was subject to Turkish rule, terrible massacres and wearisome sieges marking the early days of subjugation. A convention was entered into with Turkey on June 4, 1878, whereby the is. was to be administered by Brit. rule. This held good until the outbreak of war with Turkey, when on Nov. 5, 1914, Britain completely annexed C. On May 1, 1925, C. was given the status of a colony. From 1925 until 1931 the gov. was administered by a governor, aided by an executive and a legislative council, but after the disturbances which occurred in the is. during 1931, the clauses in the letters patent of 1925 dealing with the constitution of the legislative council were revoked, power to legislate being vested in the governor. The disturbances above mentioned were the culminating events of prolonged agitation which began to grow serious in 1920. In that year the Gks. on the legislative council instituted an agitation against Brit. rule, suggesting that the only remedy for their ills would be *enosis*,

the union of C. once more to Greece, 'their mother country.' They presented a memorial to this effect to Lord Passfield, secretary of state for the colonies, who vetoed emphatically their return to Gk. rule, stating that the affairs of the is. so governed already were not efficiently enough administered for confidence to be reposed in them; he showed that for fifty years of Brit. rule there had been no internal upheavals and no external attacks; law and order had prevailed, strict and impartial justice had been administered. While the Gk. members professed that they voiced the opinion of five-sixths of the pop., there is little doubt that their agitation was organised and financed chiefly by the Church. The agric. pop. did not desire the union and the townspeople felt only a tepid enthusiasm for this movement.

In Oct. 1931 a serious revolt broke out. Rioting began in Nicosia with the destruction by the mob of Gov. House, when the governor, Sir Ronald Storrs, lost a number of valuable paintings. The revolt, however, was soon quelled with the arrival of troops from Malta and Egypt. The leaders, including the bishops of Kitium and Kyrenia, were deported.

In 1933 an advisory council, on an informal basis, was estab. to act as a channel of communication between the gov. and the people. The people of C. are, however, essentially loyal to the Brit. connection, as was shown in the Second World War, for not only was a corps of Cypriot muleteers actually the first colonial unit to reach the W. front in France, but soon afterwards a combatant corps was raised in the is. The Cypriots realised that they were in a region which at any moment might be made by an aggressive totalitarian state an arena for its territorial ambitions. They saw close at hand the fate of Rhodes, and the other is. of the Dodecanese, with a pop. like themselves, and they did not doubt that their own safety depended on the protection of the Brit. Navy ready and able to meet all adversaries. After the war the *enosis* movement was slightly compromised by the emergence of a new extreme left wing, or Communist party, demanding *aflo-kivernisia*, or self-gov. without any attachment to Greece or Britain. An attempt was made in 1946 and 1947, by means of a consultative assembly, to draft proposals for a local self-governing constitution, but owing to quarrelling between right and left it had to be dissolved, the governor declaring that no change in the is.'s sovereignty was intended. The post-war reconstruction policy of the gov. embraces the development of the natural resources, co-operative credit and agric. marketing, the improvement of living conditions, and encouragement of exports. A five-year plan of development was initiated in 1945, including a water supply for all the vills., irrigation, and anti-malaria, and other health schemes. C. needs only external peace and internal tranquillity. When the political future of C. as a member of

the Brit. Commonwealth is accepted and assured, self-governing institutions could be speedily re-estab. Then, under the direction of her own citizens, the material prosperity that C. enjoyed for a space many centuries ago might be restored and exceeded, accompanied, it may be hoped, by a higher standard of social well-being and culture than has ever been known in all its varied hist. Pop. 450,100 (of whom 18 per cent are Muslims, and the remainder mostly members of the Autocephalous Church of C., which is a branch of the Orthodox E. Church).

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Cyranos de Bergerac, Savinien, see BERGERAC.

Cypselus (655-625 B.C.), tyrant of Corinth, was, on his mother's side, connected with the family of Bacchylade, who, having learnt from the oracle that this child was to bring about their downfall, sent messengers to murder him. They were unsuccessful, however, and he eventually succeeded in overcoming them and in making himself tyrant, ruling at Corinth for thirty years.

Cyrenaica, one of the two ters., Tripolitania being the other, of which Libya is formed, with an area of about 75,000 sq. m. (excluding the Cupra hinterland zone) and a habitable area of some 14,000 sq. m. Though it has no precise natural boundaries, the ter. which the Its. named C. is a natural unit. Its core is a limestone plateau welded on the S. to the Libyan desert and projecting in a wide arc into the Mediterranean. This core is the Jebel Akhdar, and constitutes the essential C. To the N., E., and the W. are transitional regions which, as they decline down to the level of the desert, gradually take on its character. Though the country is mostly desert, it is generally arable near the coast. The native inhab. are almost all Arabs and Berbers and the total pop. in 1939 was about 150,000. The inland natives, mostly pastoralists, are distinguished by their general adherence to the Senusiya order of Islam, an order not peculiar to them, though they form by far the most numerous and most compact Senussi group. Before the Second World War there were also sev. thousand Negroes, some 4000 Jews, and 12,000 Europeans, nearly all Its. Reached from across the stony waste of Marmarica to the E., or the sand dunes and salt marshes of Sirte to the W., the woodlands and gorges with perennial streams, orchards and flowers give the Jebel Akhdar a

romantic aspect. The It. themselves were greatly attracted to it; for after a provisional administration which lasted from their annexation of Libya in 1912 until 1923, they embarked on a policy of colonisation which proved so costly that its eventual success might be doubted, even if circumstances had allowed the experiment to succeed. Olives are cultivated in places, and there are date-palm oases. Great numbers of cattle, sheep, and camels are or were reared, and barley was grown and exported to Eng. maltsters. There are plenty of jackals, and foxes, porcupines, moles, and mice. C. flourished in antiquity owing to the trade with Central Africa, but that in modern times has been diverted through other channels. In 1930 80,000 Arabs with 600,000 herd of cattle were forcibly transferred from the inland dists. where they had tried to retain their independence to a stretch of ter. on the coast where they could be controlled by their It. masters. In 1931 the It. campaign against Senussi Muslims was successfully concluded with the capture of Cupra, the rebel leader, Omar el Mukhtar, being executed. The It. colonisation scheme involved the forcible displacement of the Beduin by Gen. Graziani, achieved after ruthless fighting in about 1934, by which time the native pop. had fallen from 400,000 to 200,000. The herds suffered even worse, the number of sheep being reduced between 1926 and 1933 from 800,000 to 98,000, camels from 75,000 to 2600, goats from 70,000 to 25,000. Not only did the It. take over the most fertile land of the Jebel Akhdar and coastal plains, but they closed many of the traditional grazing grounds of the Arabs. Scattered over the Jebel and the W. littoral, there sprang up thousands of It. farms, ranging from small white houses, with a few ac. of land, to estates of as much as 30,000 ac. C. has an erratic rainfall of 12 in. to 16 in., with a drought every seven years. There is some well water and catchments were constructed. The It. partly completed an ambitious pipe-line to carry water throughout the Jebel from Ain Marra, a spring, to the W. of Derna. In the Second World War C. became a battleground, first between the It. and Brit. forces and later between combined Italo-Ger. forces and the Brit. (For full details and description of the battles in Libya see AFRICA, NORTH, SECOND WORLD WAR, CAMPAIGNS IN.) When C. thus became a theatre of military operations, the It. pop. in tn. and country either fled or were removed to Tripolitania, from fear of Senussi vengeance, especially as, on Jan. 8, 1942, when replying to a question, Mr. Eden, then foreign secretary, said in the Commons that 'His Majesty's Gov. are determined that at the end of the war the Senussis in Cyrenaica will in no circumstances fall under Italian domination.' When the Brit. military administration was set up in 1943, after the famous Eighth Army (g.v.) had finally expelled the Axis forces, normal life had ceased in the colonised areas. The port tns., Tobruk, Derna, and Benghazi, which is

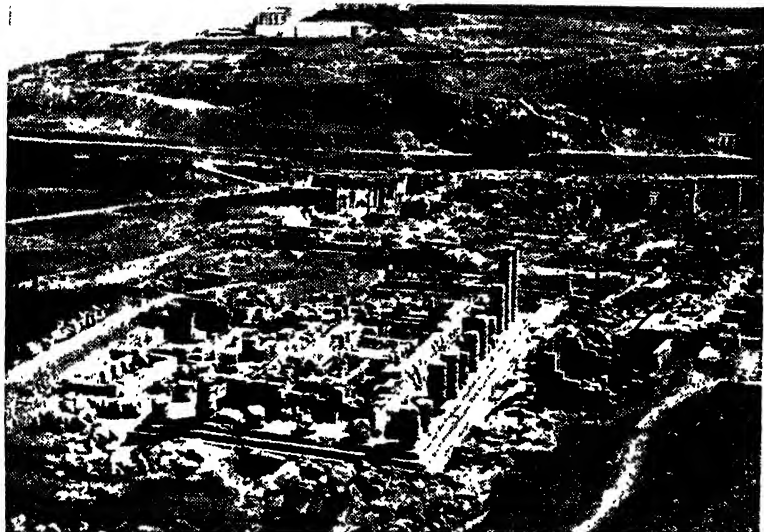
the cap. of C., were wrecked, and Cyrene, Barce, Jodabra, Apollonia, Bardia, and Gazala had also seen fighting. On the Jebel farms, catchments, and wells were damaged or destroyed, pumping machinery for the pipe-line and the formerly irrigated areas were once more the sport of the elements. The Brit. military administration's first care was the welfare of the natives, and this involved removal of the debris of two and a half years' battles. Millions of mines, shells, bombs, and cartridges were destroyed or collected into prohibited areas. Supplies of tea and sugar had to be organised from abroad. The next task was to salve as much as possible of the It. colonisation achievements; but it did not prove easy to induce the Beduin to follow a settled existence, though the attempt was most successful with Senussi exiles returning from Egypt, where they had shed their nomadic way of life. But in general the majority of the Cyrenaians have neither the knowledge nor the inclination to continue the work of the It. colonists. If C. is not to revert to an exclusively pastoral country expert foreign aid must be given and much foreign money spent on a long-term plan. Basically, however, the national wealth of C. will always be in its flocks and herds, where too foreign assistance is required. In time small national industries, such as oils and fats and leather manuf., could be encouraged. See R. di Lauro, *Tripolitania*, 1932; K. Holmboe, *Desert Encounter*, 1936; and G. Casserly, *Tripolitania*, 1943.

Cyrenaics, The, school of philosophers, so called because their founder, Aristippus, was a native of Cyrene, where also their peculiar tenets were developed. Their school lasted down to the beginning of the fourth century B.C. Their articles of belief were drawn up, as it were, by Aristippus the younger. They denied the excellence of virtue, and as they regarded knowledge as immediate sensation, considered all logic and physical science waste of time. The C. were hedonists, after the manner of the Cynics. It was their pessimism which deterred men from accepting their ideals. Theodorus of Athens, Hegesias, who advocated suicide, and Arete, Aristippus's wife, were adherents of this school.

Cyrene, cap. of the anct. Cyrenaica, Africa, was situated near the modern vil. of Grenna, S.E. of Cape Ras, a few miles only from the Mediterranean. The anct. ter. of C., called also Cyrenaica, included also the Gk. cities of Barce, Teuchira, Hesperis, and Apollonia, the port of C. Under the Ptolemies Hesperis became Berenice, Teuchira was called Arsinoë, and Barce was entirely eclipsed by its port, which was raised into a city under the name of Ptolemais. The country was at that time usually called Pentapolis, from the five cities of Cyrenaica—Cyrene, Apollonia, Ptolemais, Arsinoë, and Berenice. A colony of Laomedonians under Battus founded C. in 631 B.C., and ruled it for some two centuries, when it became a republic. In 96 B.C. Cyrenaica, with the

rest of N. Africa, became a Rom. prov., and the miserable party struggles of the cap. were effectually quelled. In the days of its prosperity C. numbered over 100,000 inhab., had a flourishing medical school, and was noted for its intellectual activities, and as the bp. of Callimachus, the poet, Carneades and Aristippus, the founder of the Cyrenaics, Eratosthenes, and the elegant Christian writer, Synesius. C., ruins of which remain to attest its former greatness, carried on a large trade with Egypt, Greece, and Carthage.

whom he then accompanied to Moravia. The two invented the Slavonic alphabet, and are said to have been summoned to Rome for employing the Slavonic tongue in the church services. After an understanding had been arrived at with Pope Adrian II., C. remained at Rome, but M. returned to Moravia as archbishop of the church there. He appears to have become involved in quarrels with the Ger. clergy, in consequence of which he was again summoned to Rome in 879 and 881. After the latter date nothing is heard of



CYRENAICA: CYRENE—THE EXCAVATED TEMPLE OF APOLLO

E.N.A.

Cyrenius, form, obtained through the Gk., of Publius Sulpicius Quirinius, who some time about the year A.D. 6 was made governor of Syria, and then took a census of the Jews. St. Luke's statement, however, seems to imply that this event happened earlier, and there have been sev. explanations offered to account for the difference between sacred and profane hist. on this point.

Cyreschata, or Cyropolis, city of Sogdiana, on the Jaxartes, the furthest of the colonies founded by Cyrus, and the extreme city of the Persian Empire; destroyed after many revolts, by Alexander.

Cyril (827-69) and Methodius (d. 885), two Christian apostles of Thessalonica. C. (Constantine Cypharæ), surnamed the Philosopher, and the Apostle of the Slaves, was sent to preach to the Chazars, and later to the Bulgarians. He founded a school at Buda. While in Bulgaria he was taken prisoner, but was released about 862 by the intervention of M., his brother,

him, and, in fact, the whole accounts of the lives of both C. and M. are meagre and contradictory.

Cyril, St. (315-86), was ordained bishop of Jerusalem in 351. It was the time of the Arian controversies, and as C. attempted to steer a middle course he was deposed in 358 by his metropolitan, Acacius, bishop of Caesarea, an action which was ratified two years later by the synod at Constantinople. But he was reinstated in his bishopric on the accession of Julian in 361. Expelled again by Valens in 367, he finally returned to Jerusalem in 378, and attended the second œcumenical council at Constantinople and accepted the Nicene formula there promulgated. His *Χαρίσμοις* (Instructions to Catechumens) contains a series of discourses addressed to candidates for baptism and a few to the newly baptised.

Cyril, St. (d. 444), of Alexandria, a father of the church, after some years in

the Nitrian desert, succeeded his uncle, Theophilus, as patriarch of Alexandria. Some measure of the responsibility for the atrocious murder of Hypatia has been attributed to C. by historians, though not by contemporaries. Nestorius, who refused to acknowledge the Virgin Mary as the Mother of God, was the victim of C.'s ceaseless persecutions. Anathematised in 430, he was condemned in 431 at the oecumenical council of Ephesus. C. himself was condemned by John of Antioch for his harsh treatment of Nestorius, both depositions, curiously enough, being ratified by the emperor, but C. was soon reinstated. A number of C.'s homilies are extant, besides his defence of Christianity (433). See E. Weigl, *Die Heilsschre des Cyrillus*, 1905, and H. du Manoir, *Unome et spiritualité chez St. Cyrille*, 1944.

Cyrillus Lucaris (1572-1637), Gk. ecclesiastic, was b. in Crete. He was a student at Venice and Geneva, in the latter place adopting the tenets of Calvinism. He eventually became patriarch of Constantinople, and to bring about the reform of the Gk. Church, kept up communications with the followers of Calvin in England and Holland.

Cyrrus, Gk. name of the is. of Corsica, from which is derived the adjective *Cyrrus*, used by the Lat. poets.

Cyrus the Great (d. 528 B.C.), founder of the Persian Empire, was the son of Cambyses I. and of Mandane, daughter of the Median king Astyages, and the grandson of Cyrus I., and the fourth of a line of kings over Anzan or Elam. He thus belonged to a branch of the royal house of the Achæmenides. His boyhood is shrouded in a mass of legend. A grandson, as it seems, of Astyages, king of Media, C. in 549 B.C. captured Astyages and gained possession of his cap., the anct. Ecbatana. Three years later he was face to face with a great coalition of Egypt, Lydia, Babylon, and the little Gk. state, Sparta. But although the famous King Croesus of Lydia had foretold him by invading Cappadocia, C. early inflicted a crushing defeat on Croesus, captured his cap., Sardis, made Lydia a prov. of his Persian Empire, and, according to Herodotus, was only prevented from burning the Lydian king alive by his admiration of his philosophy. C.'s next step was the subjugation of the Carians, Lycians, and Ionians of Asia Minor, who, nevertheless, offered a stubborn and gallant resistance. In 538 B.C. the great Babylonian empire crumbled to pieces before the Persian conqueror. King Nabonidus of Babylon had been wont to pass year after year in idleness at his cap., whilst his son led the army in Akkad (N. Babylonia). It was in Akkad alone that C. met any serious opposition, for Babylon, without striking one blow for freedom, helplessly opened its gates to let the victor in. Nabonidus d. almost immediately after this, and C., who was a polytheist and Zoroastrian, proudly proclaimed himself a favourite of Marduk, the chief local god of Babel. With Babylon fell also the Babylonian provs. in Syria, so that the Jews were now

under C.'s sway. In pursuance of his policy of religious conciliation he allowed the latter to return to Palestine and to rebuild their temple at Jerusalem, and for this generous act of deliverance from captivity he is referred to in the O.T. as 'the Shepherd and the Anointed of Jehovah.' It is also said that C. made successful military expeditions against the Bactrians and the Sæcæ. There was thus considerable justification for his title, king of the world, for his mighty empire extended from the confines of Egypt to the banks of the Indus and Jaxartes from the Persian Gulf to the S. of the Caucasus and Caspian on the N. C. was a splendid warrior and no mean statesman; in his humanity he far outstripped his contemporaries, for he never sacked a city, and spared alike captive, kings, and people. The Gks. honoured his memory. Xenophon chose him as the hero of a treatise, and to the Persians he was always the father of the people. His huge empire, which he had tried to organise under satraps, showed, however, no powers of cohesion the instant his dominating personality was removed. See L. Vivien de Saint Martin, *Mémoires sur l'éclipse de Thalès et sur l'époque de la prise de Sardes par Cyrus*, 1836, and P. Kleper, *Die Neue entdeckten Inschriften über Cyrus*, 1882.

Cyrus the Younger (424-401 B.C.), second son of Parysatis and Darius, king of Persia. At sixteen he became satrap of Asia Minor. In 404 he plotted against the life of his brother, Artaxerxes Mnemon, who had just succeeded his father. His plot was prematurely discovered, and C. was sentenced to death, but pardoned on his mother's intercession. Later he entered into an alliance with the Spartans, and it was largely through his help that Lysander defeated the Athenians at Cægospotami. But again he conspired against his brother, and marched from Sardis inland with a great army of 100,000 Asiatics and 13,000 Gk. mercenaries. At Cunaxa he came in conflict with his brother's army. Unfortunately C. was slain, otherwise the victory would almost certainly have been his. Xenophon in his *Anabasis* speaks highly of C., both of his prudence, generalship, and liberality, as well as of his enthusiasm for Gk. philosophy.

Cysoing, tn. 9 m. S.E. by E. of Lille, in the dept. of Nord, France. There are cotton and woollen manufactories and a brewery, but C. is famous for its buildings of historic interest, including a nineteenth-century church, once the chapel of an Augustinian abbey, and the ruins of an anct. Merovingian castle. Pop. 3100.

Cyst (Gk. κύστις, bladder), term used in various ways for bladderlike formations. In zoology it is applied to the protective covering formed by lower animals at such times as a period of drought or immediately before passing into the resting stage. The C. in which a young tapeworm usually becomes enveloped when in process of becoming a cystic or bladder-worm, is formed from the connective tissue of the animal in which it is residing.

Cystitis is the term used in medicine for inflammation of the bladder. A cystoscope is an instrument which, when passed along the urethra into the bladder, permits an examination of the latter and its lining.

Cystopteris, genus of Alpine and Arctic ferns in the family Polypodiaceae. *C. fragilis*, the brittle or bladder fern, is common on rocks and walls in limestone dists. of Great Britain; *C. montana* is found on hills of Scotland. *C. bulbifera* has buds on the petioles which break off and give rise to new plants.

Cythera, anct. name of the is. of Cerigo (q.v.).

Cytinaceae, a family of dicotyledonous plants, was estab. by Bentham and Hooker; it comprises the Rafflesiaceae together with the Hydnoraceae. All the species are leafless parasites without chlorophyll, and the flowers are either solitary or borne in a small, compact inflorescence. *Cytinus hypocistis* is a parasite found growing on the roots of certain kinds of cistus in S. France, and in Fr. pharmacy the condensed juice of the fruit is used as a styptic.

Cytisus, genus of hardy papilionaceous shrubs, natives almost exclusively of Europe and the temperate parts of Asia, bearing ternate leaves and almost always yellow flowers. *C. purpureus* is an exception to the yellow-flowered species, and has lilac-coloured flowers. *C.* (or *Sarothamnus*) *scoparius* is the broom-plant so well known and loved on our heaths for the brightness of its golden blossoms; the leaves of the plant are greatly reduced, and the fruit has an explosive mechanism. *C. laburnum* (sometimes called *Laburnum vulgare*) is a small tree which is a common ornament of our gardens, and, like *C. Alpinus*, its branches are laden in spring with bunches of pendant yellow flowers. They have a handsome, hard, olive-green wood, well adapted for the purposes of the turner. Both are natives of the Alps and are much alike, but *C. Alpinus* is the handsomer plant, and has broader and more shining leaves. The seeds of these species are dangerously poisonous, though most of the plants in this family are wholesome. The plant known as *C. Adami* is a curious example of a graft-hybrid, in which *C. purpureus* was grafted on to *C. laburnum*, and the upper part of the tree shows hybrid characters. The *C.* of Virgil was the *Medicago arborea* of botanists.

Cytology, branch of science that deals with the structure and behaviour of the minute cells that make up the bodies of all living organisms. The simplest organisms consist of one cell only and are said to be *unicellular*; such are bacteria, amoebae, and numerous aquatic plants and animals. Higher organisms consist of numerous cells and are said to be *multicellular*. The structure of a typical green plant cell is roughly as follows: Bounding the cell is a wall of *cellulose*, a substance familiar to every one as the chief constituent of paper and cotton-wool. Lining this cell wall is a layer of *protoplasm*, a colloidal (see COLLOIDS) sub-

stance and the actual seat of life. In the protoplasm are a number of bodies known as plastids, e.g. the *chloroplasts* containing the green colouring matter chlorophyll. The centre of the cell is frequently occupied by a watery liquid called the *cell sap*, and the space in which this liquid lies is a *vacuole*. Finally embedded in the general protoplasm or slung to it by protoplasmic threads is a body composed of denser protoplasm; this is the *nucleus*. Animal cells do not contain chloroplasts and do not as a rule produce cell walls, but, like plant cells, they all consist of (a) *nucleus* and (b) general protoplasm or *cytoplasm*. The cytoplasm contains granules known as *mitochondria*, while in animals small sections called *golgi bodies* also occur. Both mitochondria and golgi bodies play definite roles in cell div., but the details are too complex to be considered here; the golgi bodies are also thought to be concerned in the secretory activities of the cell. A more obvious and presumably more important part in cell div. is taken by the nucleus, which consists of a network of fine threads contained within a thin nuclear membrane. The nuclear material is readily stained by certain dyes, such as haematoxylin, a fortunate fact that enables its nature and behaviour to be more easily studied. When the cell is about to divide, certain changes take place in the nuclear material, which sorts itself out into short thick pieces known as *chromosomes*, the number of which varies from organism to organism, but is always the same for the same organism except in the germ cells which have only half the normal number. In this way the normal number is restored at fertilisation, egg and sperm each bringing half the total chromosomes. The process of div. of the nucleus is described as *mitosis*; it is roughly constant in its main stages throughout the animal and plant kingdom. When the chromosomes are ready, they each divide longitudinally into two, one half-passing towards one end of the cell and the other to the other end. Here the half-chromosomes help to form the two daughter nuclei, one at each of the opposite ends of the cell. After a time div. of the cytoplasm, that has been going on meanwhile, is also completed, and two cells are thus formed in place of the original one. The daughter cells in due course grow to adult size.

The careful div. of nuclear material and the constancy of the number of chromosomes indicate that the problem of the transmission of hereditary characters must centre in the nucleus. Modern research has indeed shown that the chromosomes appear to be the primary agents in this transmission, and there is evidence that a chromosome contains a number of independent factors or *genes* each of which is responsible for the transmission of particular characters. The investigations of Mendel (q.v.) and other biologists have conclusively shown that some such mechanical or material agency must be concerned in hereditary transmission, and breeding experiments extensively carried out by Morgan and others

have made considerable advances in our knowledge of the subject. The determination of sex in many animals, including man, has been shown to be conditioned by the behaviour of a certain pair of chromosomes, but it is probable that further factors are normally involved. In any case, the detailed study of the cell is one of the most promising fields of present-day biological research, and the behaviour of cells under the artificial conditions of the laboratory is likely to produce results of immense practical, as well as theoretical, importance. See the articles on BIOLOGY and CELL. See also L. Doncaster, *Cytology*, 1920; E. B. Wilson, *The Cell in Development and Heredity*, 1925; C. D. Darlington, *Recent Advances in Cytology*, 1932; I. W. Sharp, *Introduction to Cytology*, 1934; and R. A. R. Gresson, *Essentials of General Cytology*, 1948.

Cyturus or **Cytorum**, tn. on the coast of Paphlagonia, a commercial settlement of Sinope, stood upon the mt. of the same name, celebrated for its box-trees.

Cyzicus, see ANTIOCHUS.

Cyzicus, anct. name of a peninsula, about 9 m. in length, projecting out from the S. coast of the sea of Marmora, 70 m. S.W. of Constantinople. Once an is., it was famous in anct. times for the splendid city of C., described by Strabo, which was finally destroyed by the Arabs in 675. Originally C. was colonised from Miletus, in 756 B.C. As late as 1444 there were still standing thirty-one columns of the magnificent temple of Hadrian. The Turks call its mts. (2500 ft.) Kapudagh. Earthquakes again and again devastated C.

Czar, title of the emperor of Russia prior to the First World War, and of the king of Bulgaria, derived from the Lat. *Cæsar*. See TSAR.

Czarniecki, Stephen (1599-1665), Polish general. In 1654 Poland was invaded, and C. distinguished himself by strenuously defending Cracow, which he was compelled eventually to surrender to Gustavus Adolphus. He was victorious, however, in successive battles against the Russians and Swedes, notably at Koziencio, and finally gaining a decisive victory at Polonka, 1660. He was rewarded for these services, being placed in a position of high honour by the king, but d. very shortly afterwards while on a campaign against Russia. C. is sometimes known as the Polish du Guesclin.

Czartoryski, Adam Georg, Prince (1770-1861), Polish revolutionary leader, b. at Warsaw; spent part of his boyhood in England and studied at the univ. of Edinburgh. In 1793 he returned to Poland and enlisted under Kosciuszko. After the failure of this leader, C. was sent to Russia as a hostage, where he gained the favour of the Grand Duke Alexander and the Emperor Paul, who made him ambas. to Sardinia. In 1801, on the accession of Alexander, he became assistant to the minister of foreign affairs, and in this capacity in 1805 subscribed the treaty with Great Britain. He was curator of the univ. of Vilna for some time, and used all his powers to foster Polish

national feeling, resigning when some of the students were transported to Siberia for sedition. In 1830, at the outbreak of the revolution, he joined the Poles and devoted all his energies to the cause. He was appointed president of the provisional gov., and as such summoned to the Diet which met in Dec. 1830. In Jan. 1831 the Diet, having declared the Polish throne vacant, made C. head of the national gov. He gave liberally, both of his money and personal services, and after the defeats of Aug., served as a common soldier. He was excluded from the amnesty which was proclaimed on the Russian victory, and escaped to Paris, where he still remained a centre of Polish national life.

Czaslau, see CASLAW.

Czechoslovakia, central European republic, formerly part of the dual monarchy of Austria-Hungary, but whose independence was proclaimed in Nov. 1918. The frontiers of C., which border on Austria, Germany, Poland, Hungary, and Rumania, were fixed in 1919 by the treaty of St. Germain and the two treaties of Versailles. The constituent parts of C. are Bohemia, Moravia, and part of Silesia, formerly under Austrian rule, and Slovakia. Sub-Carpathian Ruthenia, formerly under Hungarian rule, was transferred to Russia by a treaty of July 29, 1945 (see below under History and also RUTHENIA).

Area and Population (1947).—Bohemia, 20,101 sq. m.; 5,626,600. Moravia and Silesia, 10,351 sq. m.; 3,135,700. Slovakia, 18,902 sq. m.; 3,402,300. Total area 49,355 sq. m.; total pop. 12,164,600 (8,200,000 Czechs; 2,900,000 Slovaks; 400,000 Gers.; 400,000 Hungarians; 20,000 Jews; 700,000 Poles). The pop. of the chief tns. is as follows: Prague (the cap.), 921,400; Brno (Brunn), 272,700; Ostrava, 181,100; Bratislava, 172,600; Plzeň (Pilsen), 118,100; Olomouc, 58,600; Košice, 58,000; Usti nad Labem, 56,100; Liberec, 52,700; Hradec Králové, 51,400; Zlín, 45,900; Teplice-Sanov, 45,300; Pardubice, 44,300; Kladno, 40,600; České Budějovice, 38,100; Most (Brunx), 35,300; Prostějov, 31,500; Karlovy Vary (Carlsbad), 31,100; Děčín Podrasky, 30,700; Opava, 30,100.

Religion and Education.—The majority of the people are Rom. Catholics, who are estimated to number 9,300,000; Protestants, 900,000; without confession, 820,000; Orthodox, 50,000; Jews, 20,000. In 1920 part of the Rom. Catholic clergy of C. decided to withdraw from the jurisdiction of the pope and to found a Czech Church which, by 1947 had 950,000 adherents. There are (1947) 18,700 schools in C., attended by 2,050,000 pupils. Of these 2423 are nursery, 13,511 elementary and higher elementary, and 261 secondary schools (the last with 101,700 pupils). The number of students at univs. and technical univs. is: Prague Univ., 18,840; Technical Univ. (Prague), 15,390; Brno Univ., 6640; Technical Univ. (Brno), 3240; Bratislava Univ., 3980; Technical Univ. (Bratislava), 1680; and Olomouc Univ., 960. There is

a Higher Veterinary Academy at Brno; a mining academy in Moravska-Ostrava; a Higher Agric. College at Brno; an Academy of Arts in Prague; and a Commercial High School in Bratislava.

Judicial System.—Far-reaching reforms of the judicial system enacted at the end of 1948 provide for three kinds of law courts. The dist. courts, of which there are to be one for every 50,000 inhab., will deal with all cases, civil and criminal, except proceedings under the defence law, which will go before special State courts. The regional courts, thirteen in number, will be courts of appeal, the decisions of which will be subject to the right of final appeal to the supreme court only if the regional court so decides when giving a

Mineral wealth includes soft and hard coal (Most, Chomutov, Teplice, Moravska-Ostrava, and Palknov have coalfields). Iron, graphite, garnets, silver (Bohemia), copper and lead (Slovakia). The industries (which have been nationalised) include steel works, cast-iron works, metal-working firms, precision instruments, glass huts, cellulose chemical and pharmaceutical, china-clay, loam and clays, cement, timber-dopes, gramophone records, industrial distilleries and alcohol refineries, breweries (the beer brewed at Plzeň is famous), and flour mills; also the broadcasting service and film industry. Imports for 1946 had a value of 10,239,000,000 crowns, and exports 14,345,000,000 crowns.



PRAGUE, FROM THE VLTAVA

verdict. From the decisions of State courts the right of appeal will be to the supreme court alone. Dist. courts will consist of two laymen with one professional judge, and only minor cases may be dealt with by the judge sitting alone. The legal profession is to be socialized by establishing regional associations of advocates to which all its members must apply for admission. Those admitted will receive a basic salary, and will hand all their fees to the association. Their work will be recorded, and they will be eligible for a share of the association's profits.

Production.—Agriculture is highly developed. Some 41 per cent of the total land area is arable land; forests cover 31 per cent; meadows and pastures 15 per cent. After the liberation of the country in 1945 land reform followed; and in Bohemia and Moravia 2,297,100 ac. belonging to 300,000 owners of Ger. nationality, and, in Slovakia, 345,800 ac. belonging to Magyars and Gers., were confiscated and distributed among smallholders and agric. workers. Agric. produce includes wheat, rye, barley, oats, maize, potatoes, and sugar beet. There are (1949) 105 sugar factories producing over 600,000 metric tons annually.

Communications.—Bohemia and Moravia: 9611 km. of railways; 27,993 km. of roads maintained by the state and 24,899 km. maintained in the dist. Slovakia: 3517 km. of railways; roads maintained by the state, 8127 km.; in the dist., 6506 km.

Finance.—Total revenue in 1948 (budget estimate) was 56,895,500,000 crowns; expenditure, 67,056,300,000 crowns. The monetary unit, the crown (Koruna, Kčs) is divided into 100 halers, and stabilised at the rate of 201.50 to the £ sterling. According to the 1947 budget the total home and foreign national debt amounts to 108,750,000 crowns. The internal debt amounts to 87,805,000 and the foreign debt to 20,945,000 crowns.

Defence.—Military service lasts two years, after which the soldier passes to the first reserve until he reaches forty, when he goes to the second reserve, till he reaches fifty. Armament and training are on the Soviet model, and co-ordinated by a Soviet military mission in Prague, according to the treaty of Moscow, Dec. 12, 1913.

History (1914-39).—The early hist. of C. is that of Bohemia (*q.v.* and also CZECHS), and the memory of that former political unity, the kingdom of Bohemia, was the

urge to such men as Masaryk, Beneš, Kramář, and Štefánek to found a similar political unity on the lines of a modern republic. At the outbreak of the First World War the Czechoslovaks (this joint name had been in current use since 1880) found themselves impressed into the service of Austria, while their sympathies were with the Allies, their political ideals being opposed to a pan-Ger. domination of Central Europe. Many Czech detachments in the Austrian Army went over to the side of the Serbs, and the exploits of the Czechoslovak Army in Siberia commanded the admiration of Europe. It was Thomas Masaryk (q.v.), who began the formation of Czechoslovak legions which served voluntarily with the allied armies, and this, together with Masaryk's own writings and speeches and scrupulously honest propaganda, convinced England, France, Italy, and America of the reality of the Czech claims to national independence. A Czech National Council was formed at Paris, and at the peace conference this was recognised as the responsible gov. of a belligerent nation with a right to be represented. Czechoslovak unity, however, was not a factitious result of the peace conference. The union of the two Slav races had for long been an ideal, and after the collapse of the Hapsburg monarchy it became an accomplished fact. In Jan. 1918 an all-Constituent Assembly, held in Prague, was followed in April by a congress of oppressed nationalities which met in Rome. In Oct. a bloodless revolution placed the administration of Prague in the hands of the National Council, and an Assembly, convened on Nov. 14 in Prague, elected Masaryk as president of the new republic, Karel Kramář (1860-1937) as premier, and Edouard Beneš (q.v.) as foreign minister. A provisional constitution was drawn up, and the National Assembly, formed after a general election on Feb. 29, 1920, passed this constitution and formally ratified President Masaryk's election for a period of seven years. In 1927 he was re-elected. Beneš represented C. at the peace conference and pleaded successfully for the recognition of C. as a national unity. The Slovaks, the former victims of Magyar domination, had free and equal rights under the new constitution, although they were not as advanced as the Czechs, deliberate retardation having been part of the Magyar policy. The most backward of the races formerly governed by Hungary were the Ruthenians, inhabiting sub-Carpathian Ruthenia, a part of Little Russia. In 1918 they petitioned for an autonomous union with C., and this was ratified at the peace conference. A 'Little Entente' was formed and renewed in 1929 between C., Yugoslavia, and Rumania to resist possible Magyar or Bolshevik aggression and to promote trade on the Danube. An agreement with respect to common interests was made in 1924 between France and Germany. The Ger. and Magyar minorities in C. enjoyed equal citizenship with the Czechoslovaks—though Lord Runciman,

who went out to C. as mediator in the dispute between the Sudeten Gers. and the Czechoslovak Gov. (see below) in Aug. 1938, suggested that the Sudeten Gers. had legitimate grievances.

The German Invasion and Annexation of 1939.—But conflicting ideologies in E. and W. Europe were already, in 1936, bringing about a deterioration in the political situation in Central Europe, and in Jan. 1937 Hitler, in a general review of his foreign policy, made no reference to the vital matters of Ger. relations with C. and, in particular, the absence of any friendly overture to C. gave rise to misgivings in diplomatic circles. Throughout 1937 the problem of the Sudeten-Ger. minorities in N. C. caused friction and anxiety. These minorities were mainly descendants of Ger. colonists invited by the last rulers of the Premisl dynasty in the Middle Ages. They numbered 3,232,000, or one-fifth of the whole pop. of C., and held 40 per cent of the country's industries. They were bitterly hostile to their inclusion in the new state of C. formed after the First World War by the treaty of Versailles, and their deputies consistently pursued a policy of obstruction, with the exception of the Ger. Clerical party, which joined the gov. bloc. In 1936 Konrad Henlein (q.v.), the Nazi-controlled leader of the malcontents, had succeeded the extremist Kaspar, whose adherents disagreed with the more apparently constitutional methods pursued by Henlein. Dr. Beneš, who was then President of C., admitted that the Sudeten Gers. had grievances—an admission which was later to receive some support from Lord Runciman in a Brit. Gov. White Paper—but he refused to entertain the idea of giving them national autonomy within the state of C. During Jan.-Feb. 1937 uneasiness was caused in C. by Ger. allegations that aerodromes were being placed at the disposal of Soviet Russia for possible use against Germany. An opportunity to inspect the aerodromes was given but refused. The death of ex-President Masaryk caused a temporary truce between the Czechoslovak Gov. and the Ger. coalition parties, but did not long abate Ger. press attacks on C. In 1938 the outlook for C. grew ominous by reason of the Ger. absorption of Austria, which not only left the Czechoslovak republic surrounded on three sides by Ger. ter., but further embarrassed it by the presence of a fringe of Ger. pops. within the whole length of the frontier. It was evident that the next Nazi step towards the consolidation of the Ger. race would be attempted against C., and the situation was made more menacing by the announcement that the Ger. Army manoeuvres would be held in the autumn on an unprecedented scale and in close proximity to the Czechoslovak frontiers. During the summer of 1938 the Nazi party in the Sudeten Ger. lands, vigorously supported by their kinsmen, pressed ever more aggressively for an increasing series of privileges, which in the end became incompatible with the sovereignty of the republic. This time there was a brief

respite, during which the Czech Gov. invited a Brit. statesman to study the questions at issue on the spot and endeavour to mediate. Lord Runciman, however, found himself thwarted by rising passions on both sides, the Sudeten Gers. accepting one concession only to demand another, the Czechs protesting that their national existence was threatened and invoking the treaty binding France to their support. Behind the Sudeten Gers. now loomed the might of Germany. Hitler had roused his followers to frenzy by a furious oration at a Nazi rally at Nuremberg. The League of

was only accepted by the Czech Gov. under severe pressure. At the eleventh hour, within three days of the date when he had announced his intention to invade C., Hitler accepted the negotiated settlement. By that time the Brit. Navy was mobilised—a factor by no means without influence in resolving the crisis, though, as events were to show, only for twelve months. Many averred that the cause of C. had been betrayed by a pusillanimous truckling to the dictators, through the Munich agreement of Sept. 30 concluded at a conference between the Brit. and Fr. Premiers and Hitler and Mussolini (see MUNICH PACT). President Beneš resigned and the truncated republic of C. set about the task of adapting policy and institutions to harmonise with the desires of the Reich. In March 1939 Hitler, in flat defiance of his Munich pledges, proclaimed the annexation of the remainder of C., accompanying his proclamation with such a display of military force as made resistance impossible.

History of Czechoslovakia during the Second World War and after.—Following the Ger. occupation (March 15), to which the army and people, on instructions from President Hacha's pro-Ger. Gov., offered no resistance, Hitler issued a proclamation declaring Bohemia and Moravia a protectorate of the Reich, Baron von Neurath being appointed protector. The Czechoslovak National Bank, together with its gold reserve of 2,500,000,000 crowns, was taken over by Ger. bank officials; the Czech Army was disbanded and all political parties were merged in a single party led by the puppet president. Slovakia, which, under Father Tiso, had acquired autonomous gov., was allowed to retain her nominal independence and military forces; but in fact her autonomy was useless, for the Gers., later in the year, in preparation for the invasion of Poland, sent large bodies of troops into the country and declared martial law. On the secession of Slovakia, Carpatho-Ukraine, the third component of the Czechoslovak state, also declared its independence, but the existence of this new state was short-lived, Hungarian troops having marched into the ter. even before the Gers. occupied Moravia-Ostrava by way of forestalling Polish action in that very important strategic position. The process of Germanising Bohemia-Moravia was carried on relentlessly by von Neurath and his coadjutor, the Sudeten Ger. Frank, assisted by the Gestapo. Hacha was left with the title of president, but wielded no power and, despite his pro-Ger. efforts, the people remained bitterly hostile to the Gers. Systematic sabotage led to arrests and deportations of Czechs to concentration camps, where they often suffered death and torture. A cruel blow to the Czech spirit was struck by the closing of the Czech Univ. The economic subjection of the country was completed by the setting up of a Customs and Monetary Union with the Reich, under which all diplomatic trade agreements were to be concluded by Germany, and the National Bank in



LACE-MAKING IN CZECHOSLOVAKIA

Nations was powerless, for its authority was acknowledged only by one side to the dispute. It was a supreme test of the Brit. Prime Minister's policy of appeasement. Meanwhile Lord Runciman reported that the claim of the Sudeten Gers. was substantially justified. The problem ought, therefore, to have been referred to the orthodox machinery of boundary negotiation through diplomatic channels. But Hitler claimed to dictate and seize by force of arms a frontier the Czechs contended to be ethnographically unjustified and one that must leave their country defenceless. It was at this stage that Mr. Neville Chamberlain, the Brit. Prime Minister, travelling by air, sought a direct interview with Hitler in his home at Berchtesgaden. Having thus induced Hitler to negotiate he consulted his own Cabinet and made a further flight to Germany in order to secure the acceptance of a plan agreed upon by Great Britain and France. This plan called upon C. to make heavy sacrifices in the cause of peace and

Prague ceased all international dealings. Abroad the Czech Provisional Gov., with headquarters in London, directed the efforts of some 2,000,000 Czechoslovak citizens abroad in co-operation with Great Britain and the Brit. Empire in all spheres. Both the Czech Army and air pilots rendered useful service to the Allies from 1940, both in Great Britain and the Middle E. But Slovakia, under the puppet president Tiso, continued to co-operate with Germany, and late in the year became a junior member of the Axis (q.v.).

Following the Ger. declaration of war against Russia, the armament industries and transport facilities of C. acquired an added importance for the Gers. There now occurred, through sabotage by Czech patriots, an unusual number of serious railway accidents, explosions in armament factories, and similar incidents. Production at the Skoda works fell by two-fifths. Von Neurath left, ostensibly for health reasons, and was succeeded by the notorious Gestapo chief Heydrich (q.v.), who promptly initiated a reign of terror, which only ended after some eight weeks with the realisation that it could not break the Czech spirit. Meanwhile Hacha, on the occasion of a visit of Heydrich to inspect the crown jewels in the St. Venceslas Chapel of St. Vitus's Cathedral, gave the seven keys of the treasury of the former Czech kings to Heydrich as 'a symbol of Czech fidelity to the Reich.' Slovakia's adherence to the Axis brought her no benefits; and in Oct. 1941 Tiso visited Hitler to receive an assurance that Slovakia, on condition of putting her forces at Germany's disposal, would not be asked to yield any more ter. to Hungary. In the succeeding period a number of pro-Nazis were introduced into the re-formed Czech Cabinet, with a view to speeding up the nazification of Bohemia-Moravia. In May 1942 Heydrich announced that the entire youth of the country was to be conscripted. Next day a bomb was thrown at his car, and he was fatally wounded. The outcome was a new reign of terror, the brutality of the Gers. culminating on June 10 in the stark horror of the destruction of the vil. of Lidice (q.v.), with the shooting of all the men and the sending of all the women to concentration camps. Executions continued until the end of the year.

On Aug. 5, 1941, the Brit. Gov., in order to obviate misunderstanding, pub. a White Paper confirming the undertaking given to Dr. Beneš (Nov. 11, 1940) that in the post-war settlement Britain would not be bound by any arrangements made at Munich in 1938 regarding the frontiers of C. Shortly before this the Czech legation in London was raised to the rank of an embassy, and the Brit. minister to the Czech Gov. (in London) also became an ambas. Von Neurath, having by now formally resigned after the death of Heydrich, was succeeded by Dr. Wilhelm Frick, former Ger. minister of the interior, while the Sudeten Ger. K. H. Frank was made minister of state. Despite the second reign of terror the underground

movement in the country intensified its activities, and notwithstanding the efforts of the puppet Premier, Dr. Krejci, the people were as bitterly anti-Ger. as ever, though doubtless many must have lost their lives in the allied air raid on the Skoda works in Pilsen (April 18, 1943). Up to the end of 1943 the number of Czechs executed by the Gers. was close on 3000. Early in 1943 the mobilisation for war work of all men up to sixty-five and women up to forty-five, proclaimed in Germany, was extended to Bohemia-Moravia, with the object of obtaining 500,000 persons for slave labour in Germany; but transport difficulties, aggravated by allied raids, made it impossible for the Gers. to move more than a portion of the 550,000 persons registered.

For some time Dr. Tuka, a Magyar, had been Premier of Slovakia, but in 1943 he retired from the vice-chairmanship of the totalitarian Hlinka party, having, however, secretly negotiated with Hungarian politicians for the incorporation of Slovakia into Hungary. Slovakia's part in the military operations against Russia was rendered largely negligible by the great losses which the Slovak motorised div. suffered in the Caucasus early in 1943, and by mass desertions from the Slovak Infantry brigade in the Crimea later in the same year. The corruption and unscrupulousness of the pro-Nazi Gov. of Slovakia were now, however, beginning to reap their harvest by driving ever greater numbers of Slovaks into the underground resistance movement. In May-June 1943 Dr. Beneš, President (in London) of the Czech republic, visited the U.S.A. and Canada, thereby demonstrating both to the Czech people and to the Gers. and Hungarians that the Czech Gov. of London enjoyed the full confidence and support of the U.S.A., a fact which was confirmed by the raising of the Czechoslovak legation in Washington to the status of an embassy. Dr. Beneš addressed a joint session of both Houses of Congress and, in Ottawa, he addressed members of both Houses of the Canadian Parliament. Later in the same year he went to Moscow to witness the signing of a treaty of friendship, collaboration, and mutual assistance between C. and Soviet Russia, the culmination of negotiations which had been in progress for many months. Czechoslovak infantry and artillery formations, which had participated in the Syrian and Libyan campaigns of 1940-42, were transferred to Great Britain, and merged with the Czechoslovak independent brigade into an armoured brigade. The first Czechoslovak independent brigade in Russia fought before Kharkov (March 1943), and won sev. decorations, among them the award, posthumously, of the title 'hero of the Soviet Union,' to Lt. Otakar Garos, first foreigner to receive the highest military honour bestowed by the U.S.S.R. A second Czechoslovak brigade was formed by Czechs, Slovaks, and sub-Carpathian Ruthenians, who had succeeded in deserting from Axis fighting formations or labour detachments. Dur-

ing 1944 the E. regions of the Czech republic were liberated from Ger. domination, and the gov. and state council in London devoted themselves to the task of legislating for the period between military liberation and the re-establishment of normal conditions; while members of the Czech Gov. in London took part in the International conferences, such as that of United Nations Relief and Rehabilitation Administration, held during the year preparatory to the post-war settlement.

The Czechoslovak armoured brigade in Great Britain left for the Continent in Aug. 1944, and took part in the siege of Dunkirk, while Czech fighter and bomber squadrons of the R.A.F. were among the air forces covering the landings in Normandy. There was formed in Russia a Czech air force regiment of parachutists who took part in the subsequent Slovak rising against the Axis forces. This rising was well prepared in co-operation with the gov. of Beneš during the latter's visit to Moscow. The Slovak Army was instructed to rise, and the civil authorities to restore the Czechoslovak republic on Slovak soil as soon as the Russian armies reached the Carpathian passes leading into E. Slovakia; and in preparation for the rising great quantities of munitions were stored in the mts. of central Slovakia. In Bratislava there was fighting between guerrillas and parachutists on the one hand and Ger. S.S. battalions on the other. The Ger. high command thereupon told the Slovak Gov. that they were about to occupy Slovakia by their military forces 'as provided in the Ger.-Slovak treaty of March 1939'. The Slovak National Council promptly countered this announcement by calling on the country to resist and proclaiming the puppet Slovak state to be abolished and the Czechoslovak republic restored on Slovak ter. Some regular troops and guerrillas succeeded in hampering the occupation of Slovakia by the Ger. Army, thereby leaving a flank in Germany open to allied attack from Poland and Rumania. In the central region, where most of the fighting took place, the Ger. Army and Gestapo burnt down vill. and slaughtered the people. It is estimated in Bratislava that the loss of life during and after the rising—which was premature in view of the fact that the Russian Army was nowhere near the N.E. Slovak border—at some 25,000-30,000. Hence the Czech forces withdrew from the area of Banská-Bystrica into prepared positions in the mts., where organised resistance was carried on pending the arrival of the Russians from Hungary.

During 1944 allied aircraft launched a dozen heavy raids on C., which caused damage to the Skoda works, and the great synthetic oil plants at Most, and in the Brno-Adamov dist., where a great armament combine was attacked. After the Allies had landed in Europe unrest increased in C., whereupon Frank threatened the people that Germany might change the legal position of Bohemia-Moravia by incorporating both ter. in the Reich, and steps in this direc-

tion were gradually taken. The real reason for this move was that with the loss of huge resources in the E. and in the Balkans the Gers. found themselves compelled to seize substituted economic resources wherever they might find them. Thus the coalfields of C. were ruthlessly exploited, mainly to manuf. synthetic oil. Following the conspiracy of the Ger. generals against Hitler's life total mobilisation of man power was ordered in the 'protectorate' of Bohemia-Moravia, and by the middle of 1944 some 500,000 Czechs were working outside their own country. Under the Ger. occupation the internal indebtedness of the protectorate had increased to more than 60 billion crowns, while the note circulation reached 24 billion crowns as against 7 billion in the whole of C. before the war.

Carpathian Ukraine (sub-Carpathian Ruthenia) was the first of the provs. of C. to be freed by Soviet and Czechoslovak troops. Early in Oct., following the collapse of Rumania, Russian forces were able to press their attack against the Ger.-Hungarian armies from a S. and S.E. direction and overrun all the Hungarian lines of defence. Owing to C.'s central position in Europe, it is not surprising that Prague was the last European cap. to be liberated. At the end of 1944 Marshal Koniev's armies entered C. from Hungary and Poland, but some months elapsed before they reached the cap. After being joined by the Czech Army Corps of Gen. Svoboda, the combined allied forces liberated Kosice and Presov (Jan. 20, 1945) and Poprad (Jan. 17) beneath the Tatras. But then Ger. resistance stiffened and it was not till the middle of March that Banská-Bystrica and Zvolen, in the Lower Tatras, fell to the Allies. On April 4 Bratislava, cap. of Slovakia, was occupied by Russian troops, who had fought their way along the Danube from Hungary. With the capture of Hodanin in S. Moravia (April 12) Russian troops entered Czech ter. A week later Gen. Patton's Amer. troops of the 50th Div. marched into C. at a point N.W. of Asch, and simultaneously the Czech Gov., now back on Czech soil, appealed to the populace to rise against the Gers.—an appeal which met with swift response. There ensued savage fighting in N.W. Slovakia and S. Moravia. On May 5 the people of the cap. rose against the Ger. occupying troops and a fierce battle lasting four days took place between poorly armed Czech patriots and the Gers., in which 2000 Czechs and nearly 1000 Gers. were killed. Amer. troops who entered Píseň on May 6 were only 50 m. from Prague on May 7, when they refrained from marching further in accordance with the Yalta agreement (q.v.) which delimited the zones of occupation between the Allies. On May 7 the Ger. garrison of Prague surrendered to the Czechoslovak National Council which had organised the rising, and the last remnants of Ger. resistance were wiped out by Russian troops who entered the city on May 9, the day following the final capitulation of the Ger. forces in

Germany. Ters. taken by Gers., Poles, and Hungarians were restored to Czechoslovak sovereignty between Nov. 1944 and June 1945. Sovereignty over sub-Carpathian Ruthenia was transferred to the Soviet Union by the treaty of Moscow, July 29, 1945. Dr. Benes and his associates reached Slovakia in April, where they set up a provisional gov. of the National Front of sixteen Czechs and six Slovaks pending the meeting of the Constituent National Assembly which was to consist of a single House of 300 members. The nationalisation of the means of production, in industry and agriculture and commerce and of banking and insurance, became the chief item in the gov.'s programme. Another fundamental change in the structure of the Czechoslovak republic which took place in 1945 was its change from a multinational into a Slavonic national state. Ger. and Hungarian minorities were transferred variously to Germany and Hungary and later to the Amer.-occupied zone of Germany. The Czechoslovak Gov. at length agreed to retain in C. the rest of the Ger. pop., without, however, restoring the minorities statute of the peace treaties of 1919-20. The ensuing purge resulted in retribution for the chief quislings. Thus Hacha *d.* in imprisonment, while the chief collaborator with the Gers., Col. Emanuel Moravec, committed suicide. Sudeten Ger. Nazis who had helped organise the Ger. reign of terror were handed over to the Czech authorities by the Amer. Army in the occupation zone. Henlein took his own life on being arrested by the Amers. Tiso was brought to trial in Bratislava and condemned. Von Neurath was one of the accused at the Nuremberg trial, charged with responsibility for the murder of Czech students in Prague in Nov. 1939, and for war crimes committed under his authority (*see further under NUREMBERG TRIAL*).

The first post-war election in C. took place in 1946. As in most of the liberated countries, the election was really a trial of strength between the E. and W. concepts of democracy. But whether Democrats or Communists, maintenance of the Russian alliance was axiomatic for every one, irrespective of his politics; but of course the Communists were naturally in the best position to appeal to that universal sentiment. The People's party, however, which is nationalistic or right, is mainly Catholic, and the pope's attitude towards the policy of ejecting racial minorities from their homes caused many Czechs, who were determined to eject all the Gers., to withdraw their support, although the party itself was committed to that step. The Social Democrats, whose leader was M. Fierlinger, the then Prime Minister, had acquired the reputation of being merely a less extreme version of the Communists and therefore had lost ground to the latter. In the result the left-wing parties obtained 152 seats and the right 148. The figures were: Left: Communists 114, Social Democrats 36, Slovak Labour

party 2; Right: Czech Socialists 55, People's party 47, and Slovak Democrats 46. It remained to be seen whether the left could now consider itself strong enough to change the constitution adopted after the First World War, when W. influence, and in particular the influence of the Amer. constitution on President Masaryk, was predominant; whereas the left now stood for the leadership as developed in Russia, for a single-chamber legislature, for making the judiciary an instrument of politics, and for subjecting the individual to strong party discipline. The issue was not left long in doubt, for the all-party gov. formed in 1946 was forced to give up office in Feb. 1948 to the Communist party, who demanded a gov. under their exclusive control. In Feb. 1948 the Communists, urged on by the Soviet Union, which was seeking to create a series of satellite states suitable to its own ideology, secured control of the government. A new gov. was formed in which twelve out of twenty-four ministers, including the Prime Minister, Klement Gottwald, were Communists, while most of the rest were Social Democrats. The acceptance of this ministry, which was forced on Dr. Benes, the president of C., was accompanied by a ruthless purge of the civil service and the suppression of sev. newspapers. The papers still favourable to the previous regime of Czech Socialists, People's, and Slovak-Democratic parties, could not therefore publish the text of the three-power statement by the Brit., Amer., and Fr. Govs. condemning these events as the 'establishment of a disguised dictatorship of a single party under the cloak of a Government of National Union,' and, in fact, the Czech Communist Gov. banned pub. of the statement. Gottwald declaring that his Cabinet would not accept lessons on democracy from those who were responsible for Munich (*see MUNICH PACT*). Jan Masaryk (*q.v.*), son of C.'s first president, minister of foreign affairs, committed suicide, and Benes, although he did not give up his office immediately as president, virtually retired from public affairs. He resigned on June 7, being succeeded by the Prime Minister, Gottwald, and *d.* on Aug. 2. His surrender to the Communist demands had undoubtedly as its sole motive the preservation of the Czech people, for otherwise civil war would have ensued.

Language and Literature.—The Bohemian language belongs to the Slavonic group, and was the first of that group to be scientifically cultivated. It is spoken in Bohemia and Moravia, and in a slightly modified form in Austrian Silesia, Slavonia, and a large part of Hungary. The language, in common with the other Slavonic languages, has many declensions, tenses, and participles; in this respect it surpasses modern languages, and is analogous to the old Gk. and Lat. tongues. The consciousness of Bohemian is increased by the absence of auxiliary verbs, and by the fact that in the preterite tenses the termination expresses the sex of the verb's subject. It has a great variety of words

for varying shades of meaning, and possesses also the past participle active. The small connective particles, corresponding to the Gk. *ἀλλά, μέν, γάρ, δε*, etc., are also to be found in the Bohemian. It will thus be seen that the language has much expressiveness and energy. It resembles the Gk. in its subtlety of grammatical structure; it also possesses the dual number, and is indeed exceptionally well adapted for translating the classics. A great variety of sounds can be expressed, as the alphabet has forty-two letters. Language is undoubtedly a great influence in the development of national music; Bohemian is ranked next to it, in musical value.

Ilaska, wrote clever satires. Pribik Pulkava wrote another prose chronicle, and the *Thaddecek* (the weaver), which is thought by some to be based on a Ger. production, is written in praise of a certain Adelticka; the author of the latter work is not known. The Bohemian author of the fourteenth century who is pre-eminent among his contemporaries is Thomas of Stitny (1333-1400), who wrote in excellent prose upon religious and moral questions. Among other authors may be mentioned Warnier Z. Brezowa, who wrote a hist. of the Rom. emperors and trans. *Mandeville's Travels*. By the end of this period also the complete trans. of the Bible into Bohemian had been made.



BOHEMIA: MARIÁNSKÉ LAZNE (MARIENBAD)

Bohemian literature may be divided into three main periods—the first extends from the beginning up to the time of Huss, that is, to 1409; the second period extends from the time of Huss to about 1774; and from then till the present time forms the third period. The *Chronicle*, in verse, which is generally called after Dalibail, though the real name of the author is not known, belongs to the fourteenth century. The Bohemians possess some remains of a collection of national songs, which probably date from 1290. The univ. of Prague was founded in 1348 by Charles IV., who was strongly in favour of the culture of the Bohemian language, and commanded it to be learnt by the sons of the Ger. electors. All decrees were written in Bohemian instead of in Lat. in the reign of his son, the Emperor Wenceslaus. To this period belong the *Book of the Old Lord of Rosenberg*, one of the very early specimens of Bohemian prose, and the *Exposition of the Law*, by Andrew of Duba. Smil of Pardubitz, surnamed

The prevalence of religious disputes caused the Bible to be more widely read and better understood. Huss did much to settle Bohemian orthography, and his voluminous writings had great influence. Many of his works were in Lat., but a number in Bohemian. The church service was now read in Bohemian, the Bible was re-trans., and a great number of religious and controversial works were written. One of the most influential figures of the time is Peter Chelcicky, who d. in 1460. He has been styled the Bohemian Tolstol, and his writings had much influence in the formation of the Bohemian Brethren. His chief work is *The Net of Faith*. The first regular printing press was set up at Prague in the year 1487, and the years 1500-1620 may be said to constitute the golden age of Bohemian literature. In Bohemia at this time the cultivation of learning was open to the whole people; all branches of science received attention, and were brought to a very high degree of knowledge for the time. The writers

of the period are too numerous to receive detailed mention, but the names of 'Gelenius and Veleslavin,' 1546-09; Libocan, d. 1553; Bartos, d. 1539; Sikt of Ottendorf, 1500-83; Hajek, 1495-1553; Harant, Pisecky, and Wenceslaus Vratislav may be mentioned. But in 1620 the battle of the White Mt. rendered fruitless the Bohemians' efforts to preserve their language. The whole Bohemian nation submitted to the conqueror; no literature was produced in the country, and the decline was such that by the eighteenth century Bohemian as a written language might be said to be almost extinct. John Amos Comenius, or Komensky, wrote over fifty works, dealing mostly with educational subjects, including the first illustrated book for children. But they were written from exile, Comenius dying in Holland at the age of seventy-eight, in the year 1670. Like Comenius, Wenceslas Hollar also escaped to England after the Thirty Years war. His etchings show London before the Great Fire. Bohemia was at this time culturally one of the most advanced countries of Europe. But, after the so-called counter-reformation, Jesuits and soldiers exterminated all Hussite literature, and only after the Fr. Revolution was it possible again to be a Protestant, and literary and historical societies began to organise a nationalist movement—though still forbidden to assume political forms. In the third period of Bohemian literature a revival took place. In that time a deputation of secret Bohemian Protestants induced the Emperor Joseph II. to grant religious toleration, and the Bohemian language at the same time began to flourish. The revival was still more marked from the middle of the nineteenth century. The poet Karl Hynek Masha was the leader of the so-called romantic school, by means of which the Bohemian drama again began to flourish. Most of Shakespeare's plays were trans. into Bohemian. Generally speaking, the first Czech pub., which began to appear at the time of the Fr. Revolution and the first decade or two of the nineteenth century, were trans. or imitations of literary products of other countries; but the fact of their being pub. in Czech made them precious to those who believed in the future of their country. It is therefore not surprising that this early period of modern Czech literature has a predominantly romantic character, as exemplified in Kollar's (1793-1852) *Daughter of Slava*, a cycle of 600 sonnets to Slav solidarity. Also of romantic character is Masha's *May*, a poem of hopeless love inspired by Byron. The realistic element which was, however, soon to pervade Czech literature was introduced by Havlíček, a journalist and satirical poet, whose *Tyrolean Elegies* were a forceful challenge to the absolutist regime of his time and (with other works) cost him his life. Also of the realist school are Bozena Němcová, 1820-82, a woman writer on Czech village life who collected the folklore of the country; and Neruda, also a poet and journalist, whose *Cosmic Songs* and *Friday Songs* mark the dawn

of modern Czech poetry. Three prolific writers dominate this period: Jan Vrchlický (Emil Bohus Frida), 1853, a poet, dramatist, and translator; Zeyer, b. 1841, poetic reviver of medieval legends; and Cech, a poet and author imbued with national fervour and social sentiment. Among the many noteworthy figures in literature from 1774 onward the following may also be mentioned: Joseph Dobrovsky, 1753-1829, wrote a Czech grammar and a valuable work on Old Slavonic; Jungmann, 1773-1847, compiled a dictionary; Celakovsky, 1799-1852, a poet; Palacky, 1798-1876, the author of the best national hist., and other historians since his time, Tomek and Kalousek. Schafarik, 1795-1861, was the ethnographer of the Slavonic races. Karel Harlick may be called the founder of Bohemian journalism. The best known poets of last century include also Sladek, b. 1845, and 'Eliska Krasnohorská,' the *nom-de-plume* of Henrietta Pechs. Among many later writers are Hviezdoslav, poet of the Slovak resurrection; Hruban-Vajanský, the romantic Slovak writer; Krasko, Slovak lyricist; Hermann, the Czech Dickens; the novelists Sránek (also a poet); Olbracht (Carpathan peasant life and themes of moral and social conflict); and Capek-Chod; Langer, the playwright; Bex Bezruč, the poet of oppressed miners; Wolker and Hora, lyric poets, who treat of social problems; Sovs, sensitive lyricist; and Nezval, the surrealist.

Two names of Bohemian writers are known beyond the confines of their own country. The first is that of Thomas Masaryk, the first president of the Czechoslovak republic. The other is Karel Capek (a.v.), the author, alone or in collaboration with his brother Joseph, of dramas and novels criticising contemporary life. In his early work Masaryk stood for a realism which revolted from the romanticism of the Ger.-inspired school with its cultivation of personality, and laid emphasis on social consciousness and duties. He stood for a unified concept of life, and it was this orientation which finally led him to embrace a political career. His works, apart from national propaganda, are chiefly philosophic and sociological. Karel Capek also belonged to the realist school and was a critic of life, but working in a different medium from that of Masaryk. It was his drama *R.U.R.* (1920) which first made his name known outside his country. An excellent Eng. trans. of this was made in 1923 by P. Selver, and other of Capek's works have been trans. by him. This play is a criticism of the mechanical tendencies of modern life and gave the word robot to the Eng.-speaking world. With his brother Joseph he also wrote the *Life of the Insects* (1923), a dramatic satire on mankind. His *Makropulos Affair* (1922), a novel, deals with longevity, and his second Utopian novel, *The Manufacture of the Absolute* (1927) also aroused much interest. An extraordinary literary case is that of Jaroslav Hasek (1883-1923) and his book *The Adventures of the Excellent Soldier Schweik during the*

World War (1921). The majority of the Czech literary critics dismissed it as a comparatively unimportant work, but the reading public took the four vols. to its heart and ed. after ed. was called for. In 1883 the National Theatre was founded at Prague, and this gave an impetus to drama, which provided such dramatists as those noticed above.

Architecture and Art.—Prague has a wealth of architectural beauty matching its varied hist. from the seventh century onwards, in the most varied styles—Gothic, Romanesque, Renaissance, rococo, and especially baroque. The oldest architectural remains in C. are the small circular churches or rotundas, some dating from the tenth century and many of which may be seen between Prague and Znojmo in Moravia, while a few still remain in S. Slovakia. The basilica type, of a somewhat later period, is exemplified in the St. Wenceslas Church at Stará Boleslav and in the anct. basilica of St. George, Prague. The Romanesque style reached its zenith in the twelfth century with the castles at Cheb, Zvíkov, and Orlik. The Romanesque Charles Bridge of sixteen arches and piers over the Vltava R. dates from the fourteenth century, having been built by Charles IV. in place of the older twelfth-century bridge. Among the large halls of the Hradčany Castle the Vladislav Hall is built in the late Gothic style, but the windows and portal are the oldest examples of the Renaissance style in central Europe. It is 200 ft. long by 63 ft. wide and was constructed between 1484 and 1502 by the architect Beneš of Loupy, who also designed some early Renaissance buildings, including a tn. hall in Charles Square, Prague. The earliest indications of Gothic, often mingled with the Romanesque, date from the end of the twelfth century. The monastery at Trobič, St. John's Church at Jindřichův Hradec, and St. Bartholomew's Church, Kolín, show the earlier phase. The Gothic style became firmly estab. in the reign of Ottakar II. (1253-78) and persisted into that of Charles IV. (d. 1398), though but few notable examples escaped destruction during the Middle Ages. Signs of later Gothic appeared in Bohemia in the reign of Vaclav (Waclaw) IV. (1378-1419), particularly in elaborate external decoration. Some of the best examples of this style, which is sometimes styled the Vladislav Gothic, are St. Vitus's Cathedral, Hradčany, Prague, the building of which was begun under the inspiration of Charles IV.—whose creative endeavours are also illustrated in the beautiful castle of Karlův Týn; and St. Barbara's Church at Kutná Hora (a small tn. S.E. of Prague). Four hundred years before the foundation of St. Vitus's Cathedral a Romanesque rotunda was built on the site. Like Hradčany Castle, the cathedral was almost continually enlarged, renovated, and repaired, so that each edifice really represents many styles from Gothic even to baroque. It was not until 1929 that the cathedral in its present form was completed. The transversal nave is nearly 120 ft. high and contains the altar

before which the coronation ceremony of the Czech kings took place. A special feature of the cathedral is the chapel of St. Wenceslas, which has a remarkably sumptuous appearance by reason of its walls being decorated with semi-precious stones. The exquisite Gothic cathedral of St. Barbara, which ranks next in importance to St. Vitus's, and is one of the most magnificent monuments of C.'s past, has, unlike St. Vitus's, no tower, but its striking tent-shaped roof is crowned by three spires and the building rises above a wooded valley like a rich bouquet of flying buttresses and pinnacles. The massive Praha Brána, or Powder Tower, in Prague also belongs to the same period of Gothic architecture. It, architects, artists, and artisans came to Bohemia in the sixteenth century, and such edifices as the Belvedere (1534), the star-shaped Hřesda Castle or royal summer-house (near the battlefield of the White Mt.) at Liboc (1555), the Schwarzenberg Palace (1563), and the rotunda at Jindřichův Hradec (1592) were built with it. assistance. Many prov. churches, tn. halls (e.g. Plzeň), and castles (Litomyšl) exemplify this style and are notable for their decoration with external mural paintings. The period of the counter-reformation and the advent of the Jesuits saw the introduction of the baroque style of architecture. The new churches and the palaces of the new foreign nobility were built in this style; the architect Christopher Diezenhofer, and especially his son Kilian (1689-1751), designed many of these buildings. The parapet of Charles Bridge is decorated with thirty statues of saints, which were added when the opulent baroque became the fashion. They form an effective contrast with the classically simple line of the bridge itself. Notable as an example of the baroque style is the church of St. Nicholas, Prague, with a tall steeple and bulky dome and copper roofs. Twentieth-century architecture is well represented by the Institute of Pensions, Prague, the buildings of the modern industrial tn. of Zlín, the sanatorium in the High Tatras, the new primary school buildings, with their hygienic class-rooms, domestic science rooms, and gymnasiums, the numerous Sokol gymnasiums all over the country, and the town-planning round the anct. city of Brno.

Czech art was estab. by the fourteenth century, with the embellishment of books by illuminated MSS. It was encouraged by the time of Rudolf II. but interrupted by the Thirty Years war in the seventeenth century. Noted painters prior to the nineteenth-century revival are Brandl, Reiner, and Škréta. Joseph Mánes (1820-1870) was C.'s first famous creative artist, in landscape portraiture and natural studies. An artist well known for his historical paintings is V. Brožík (1849-1913), who exhibited in Paris. Upřka, the Slovak painter, depicted typical Slovak scenes and life in a colourful impressionist style. The most important modern Czech artist is Max Svabinský, a follower of the Mánes school, which did much to foster art in C. He is also a

pioneer in Czech graphic art. In sculpture the most noted figure is J. V. Myslbek (1848-1922), whose subjects are mostly founded on Czech hist. Other sculptors are Jan Stursa (1880-1925), whose 'Wounded Man' and a figure of T. G. Masaryk are among his best known works; Gutfreund; and Benda. There are also a number of sculptors whose themes combine mysticism with realism.

The art of which the nation may be most proud is music. On the foundation of a rich folk-music a national opera was created by Bedřich Smetana (*q.v.*) (1824-1884), while Anton Dvořák (1841-1904) remains a composer of the front rank. Smetana was the creator of modern Czech music, simple folk tunes being a source of most of his inspiration. He is the composer of many tragic and comic operas, while his cycle of six symphonic poems, *My Country*, are an apotheosis of the historical past of the Czechs. The success of Dvořák, also a creator of modern Czech music, was unusual for a Czech composer. His operas are, perhaps, not so well known as his other compositions, particularly his great oratorio, *Stabat Mater*, and much of his chamber music. Besides these two great classical composers, C. has numerous others, some quite well known outside their own country: Suk, son-in-law of Dvořák, composer of orchestral works and chamber music, including *Praga* and *Israel*; Novák, who specialised in symphonic poems such as *Slovak Suite* and *In the Tatra*; Janáček (*q.v.*), opera composer; Fibich, creator of modern Czech melodrama; Foerster, writer of symphonies and operas; Martinů, a living composer who shows the influence of Stravinsky; and Weinberger, composer of the opera *Standa the Bay-piper*.

See F. H. A. Litzow, *History of Bohemian Literature*, 1899; F. Chudoba, *A Short Survey of Czech Literature*, 1924; A. Matejcek and Z. Wirth, *Modern and Contemporary Czech Art*, 1924; V. Nosek, *The Spirit of Bohemia*, 1924; T. Capek, *The Origins of the Czechoslovak State*, 1926; T. G. Masaryk, *The Making of a State*, 1927; P. Selver, *Anthology of Czechoslovak Literature*, 1929; and C. J. C. Street, *President Masaryk*, 1930.

Czechs, etc., Slavic people of whom there are now well over 8,000,000 in Czechoslovakia. Once they dwelt along the banks of the Upper Vistula in Carpathia, but about A.D. 475 they swarmed across to the country now known as Bohemia. As early as the ninth century their name was applied to the entire Slav pop. of Bohemia, as they had conquered or absorbed all the other Slavic tribes that migrated with them. C. are found also in Russia, and the U.S.A., where newspapers are printed in their language. In the nineteenth century this people, under the leadership of Joseph Dobrovsky, revived their language, which was growing extinct. This revival, which led to the foundation of Czech schools and a Czech univ., was responsible also for the institution of a national or Czech political party in 1848.

Czegled, tn. 18 m. N. by E. of Kecskemet, in Hungary, and a junction for many railways. Pop. 37,000.

Czermak, Jaroslav (1831-78), Bohemian artist, b. at Prague. He studied art in Antwerp, Brussels, and Paris, and his first pictures dealt with incidents in the hist. of Bohemia, his own country; among these pictures being 'Rudolph II.'s begging Court-Poets,' the most famous of his works dealing with such subjects. After travelling in the Near E. in 1858, he painted pictures dealing with incidents and subjects with which he had become familiar there. Among these pictures may be mentioned 'A Montenegrin Woman and Child,' 'The Turks seizing a Herzegovinian Woman.'



KARL CZERNY

Czermak, Johann Nepomuk (1828-73), Czech physiologist. Appointed prof. of physiology in Budapest (1858), in Jena (1865), and in Leipzig (1869). At his own expense he built a laboratory and auditorium adapted for demonstrations in experimental physiology. He made improvements in the laryngoscope, and did pioneer work in rhinoscopy.

Czernowitz, Cernauti, or Chernovits, city of the Chernovits region of the Ukrainian S.S.R. Overlooking the R. Pruth, it is built on a hill, varying in altitude from 520 to 950 ft., round which stretches a marshy country. Besides the fine episcopal palace (completed in 1875), C. has a Gk. orthodox cathedral (finished in 1864), controlled by an archbishop; a Rumanian, formerly Ger., univ., and an Armenian and Jesuit church. It is a clean, attractive, modern city, with considerable commerce in agric. produce, cattle, wood, and spirits, and a very cosmopolitan pop. Pop. (1938) 109,800.

Czerny Djordje (Black George), original name George Petrović (1766-1817), also known as Karageorge, founder of the Karageorgevich dynasty. A Serbian who belonged to the poorer classes of that country, he constituted himself leader of the Serbians against the Turks, owing to the cruelties practised by those people

and eventually, in 1806, succeeded in making himself master of Belgrade, having been secretly helped by the Russians. He was afterwards recognised as the ruler of Belgrade. About the year 1812, however, the Russians were unable to aid him, owing to their being involved in war themselves, and he was defeated and obliged to flee into Austria. His rival, however, during his absence, was Miloš Obrenovich, who, on C.'s return to Serbia, had him murdered, Obrenovich himself having assumed the leadership of the Serbians.

Czerny, Karl (1791-1857). Austrian pianist and composer, b. in Vienna, son of a pianoforte teacher, who trained him for that instrument to such good purpose that he began his own career as a teacher at fourteen. He came under the notice of Beethoven, whose pupil he became in the sense in which the great master had pupils. His greatest claim to distinction as a pianist is that he was chosen to be the first to play Beethoven's 'Emperor' Concerto in public. He soon became the most popular teacher of the piano in Vienna, where there were numerous competitors.

His pupils* included Liszt, Döhler, and many others who became famous. He wrote hundreds of popular pianoforte studies, and his works, which included most kinds of compositions, numbered 1000 at the time of his death, but few of them possess high merit, though he was skilful in devising variations for the piano of the display type.

Czestochowa, tn. of Poland, is situated in the dist. (formerly gov.) of Piotrkow on the R. Warta, or Warthe, close to the Silesian frontier. In 1939 it was included in the portion of Poland annexed by Germany in 1940. Reverted to Poland in 1945. The manufs. carried on here before the Second World War were chiefly those of cotton and woollen goods. This tn., which is an old one, was especially noted for its convent, in which was kept a picture of the Virgin, which was treated as a relic and visited by 200,000 pilgrims every year. Pop. about 138,000.

Czortkov, tn. 37 m. S. by E. of Tarnopol on the R. Sereth, in the Lvov region of the Ukrainian S.S.R. (formerly of Poland). There are tobacco factories and an old castle. Pop. 5200.

D

D is the fourth letter of nearly all the ant. and modern alphabets. It is the exact counterpart of the Semitic *daleth* (including modern Heb.) and the Arabic *dal*, as well as of the Gk. *della*. The Etruscans had no use for *d*, but the Romans—who borrowed their script from the former—created their alphabet before the Etruscans had time to reject this letter. The shape of **D** was slightly modified in the course of time. It was originally (in the Semitic alphabet, an irregular triangle (at a later stage, with a tail added to the right) and became a regular triangle in the Gk. character, Δ. In the Rom. alphabet, it became rounded, *D*. The minuscule was formed by lengthening a part of it, *d* from *D*. The sound of *D* is the soft dental mute, though really not a true dental in Eng., being sounded by placing the tongue against the top of the gum.

D, in Rom. notation signifies 500, being half of the symbol *DCC*, or *M* (1000), which itself was possibly taken from the Gk. *δ*.

D, in music, is the second note of the natural scale. The key of *D* major contains *F#* and *C#*, and its relative minor is *B*. The key of *D* minor has *Bb*, and is relative to the major key of *F*.

Dab, salt-water fluke, or *Limanda*, a fish which is closely allied to the plaice and flounder in the Pleuronectidae, or flat-fish family. The names of smear, lemon, or smooth dab are often given to *Solea lascaris*, the lemon sole.

Dabchick, popular name for the lesser grebe. See GREBE.

D'Abernon, Sir Edgar Vincent, first Viscount and Baron, of Esher and Stoke D. (1857-1941) Eng. diplomatist, son of Sir Frederick Vincent, eleventh baronet and rector of Slinfold, Sussex. Educated at Eton and served in Coldstream Guards for five years. In 1882, appointed president of the council of the Ottoman Public Debt and, in 1884, financial adviser to the Egyptian Gov. Knighted 1887. In 1889 he became governor of the Imperial Ottoman Bank. Speculated heavily and set the example to his staff. When the crash came he had made a fortune himself, but the bank felt morally bound to pay the gambling debts of its younger employees. Elected Conservative member for Exeter, 1899; defeated, 1906 and, again, in 1910, when he contested Colchester as a Liberal. Created a peer in 1914. From 1915-20 he was chairman of the Central Control Board (Liquor Traffic). By 1920 his speculative past had been so far forgotten that he was chosen to be the first Brit. ambas. to the Ger. republic. His appointment arose out of his experience as a financier, which, it was thought, would be valuable in view of the economic problems confronting Germany. He instigated the

conference of experts which initiated the stabilisation of the mark and helped to realise the Dawes Plan (q.v.). Another notable achievement was the Anglo-Ger. Commercial Treaty of 1924. He was the Initiator of the Locarno Pact, for it was at his instigation that Germany suggested the conference of the powers which made that agreement possible and led to Germany's admission to the League of Nations. In 1929, three years after his retirement, he headed a highly successful Brit. commercial mission to Argentina, and other S. Amer. countries. His report, with its strictures on antiquated methods of Brit. salesmanship abroad made a great stir. In 1879 he pub. *A Grammar of Modern Greek* (adopted by the univ. of Athens; later in life, he pub. *Alcohol: its Action on the Human Organism*; three vols. of memoirs, *An Ambassador of Peace: and Portraits and Appreciations* (1931).

Dabhoi, tn. of India in the state of Baroda. It contains a stone temple, rich in sculpture, and also a stone water cistern, notwithstanding the fact that there is a singular lack of stone in the dist. Pop. 16,000.

Daboecia polifolia, or *St. Daboo's Heath*, bushy evergreen shrub of small size, well fitted for planting in shrubberies and rockeries. It flourishes in Ireland and the Pyrenees.

Da Capo, or *D.C.*, in music, placed at the end of a movement as a direction to return to the beginning of the movement and finish where the word 'Fine' is placed. The term is often *Dal Segno*, i.e. repeat from the sign: *S*; only.

Dacca, tn. of E. Bengal, Pakistan, 270 m. N.E. of Calcutta. It extends for 4 m. along the N. bank of the Buribanga R. There are many important buildings; the palace of the Nawab of D., the bank, Eng. church, Baptist mission buildings, and the Rom. Catholic cathedral. A mysterious sound called the Barisal guns is said to be caused by a gun lying at the bottom of the riv. calling to its anct. mate, which stands on the Buckland Bund. The Lal Bagh fort, built in 1678, is the most picturesque monument of D., which from 1905 to 1912 was the cap. of the prov. of E. Bengal and Assam. The univ. has 1170 students. *D*. is still the largest civil station in Bengal outside Calcutta. It has the atmosphere of a romantic past and very good bazaars. Muslins are made here and silver filigree work and buttons. Pop. 213,200.

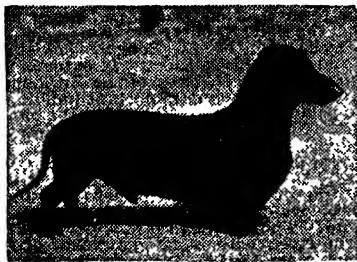
Dacca, University of, was estab. on July 1, 1921, on the lines of the later Eng. univs., but with residential facilities. No distinction of race, sex, creed, or class is observed, but special attention is given to Islamic studies and the educational

requirements of Moslems. The faculties include arts, science, and law. There are well-equipped laboratories for chemistry, physics, and psychology; more than 100 ac. of playing fields; three residential halls; five buildings; and a library of more than 50,000 books.

Dace, Dart, or Dare, popular names of the carp-like fish *Leuciscus leuciscus* of the family Cyprinidae, allied to the chub, roach, and minnow. It is a native of Europe and is found in deep, clear water in shoals. The average weight is less than 1 lb. and the length 8 in., but the fish is much sought after by anglers.

Dach, Simon (1605-59), Ger. lyric poet and hymn writer, b. at Memel. Though poor he received a good education, and graduated at Königsberg Univ. Gaining considerable reputation as a lyric poet, he was appointed prof. of poetry at Königsberg (1639). One of his best-known poems formed the original of Herder's *Annchen von Tharau*.

Dachau, tn. in Bavaria, Germany, a few m. N.W. of Munich, on the Amper, a trib. of the Isar. Notorious in the Second World War for one of the worst Ger. concentration camps (q.v.) Martin Weiss, the Ger. commandant of the camp, and his thirty-nine co-defendants to the charge of committing atrocities against the inmates were found guilty at a trial in Dec. 1945 by an Amer. military gov. court and duly sentenced. Among those convicted were five doctors, including one Klaus Schilling, a seventy-four-year-old man who killed hundreds of people in experiments with malaria, and two others who were charged with conducting pressure experiments on inmates for the benefit of the Ger. Air Force. Some of those killed were captured Amer. airmen.



T. Fall

SMOOTH-HAIRED DACHSHUND

Dachshund, badger-dog that came into England from Germany. It is not a fighter, but is a good house-dog. In sport it finds the fox or badger, but does not come to close quarters with them, merely barking incessantly until the hunters come up. The D. has a soft and silky coat, a very long body, the length from the back of the head to the root of the stern being two and a half times the height of its shoulder. Its colour varies,

but much white is not desirable. Its other points are head long and narrow, with rather small, very intelligent eyes; ears long, broad, and silky, set low and carried back and close to the head, measuring from 13 to 14 in.; jaw strong and square; chest deep and narrow, with a prominent breast bone; forelegs very short and sturdy, well crooked; hind legs smaller in bone; feet strong and well padded; skin thick, loose, and supple; coat short and strong; loin well arched and muscular; body long and low but not cloddy. Its weight is about 21 lb., a bitch about 18 lb. There are also long-haired, wire-haired, and miniature varieties of the breed.

Dacia, in ant. times the name of an extensive dist. N. of the Danube, corresponding roughly with the modern Rumania, Transylvania, and part of Hungary. Its inhab. the Dacoi, or Getae, were a warlike tribe of Thracian origin. They began to trouble the Romans in the time of Augustus, and in the reign of Domitian, under their king, Decebalus, the Dacians forced their more civilised enemies to buy them off with an ann. payment. After a war lasting from 101 to 106 A.D., the Emperor Trajan made D. a Rom. prov., but it was abandoned by Aurelian about A.D. 275.

Dacier, André (1651-1722), Fr. classical scholar, b. at Castres, Upper Languedoc. He was made librarian at the Louvre in 1694; became a member of the Academy of Inscriptions (1695), and of the Fr. Academy, being appointed in 1713 perpetual secretary to the latter. His works include ods. of Festus and Verrius Flaccus, and trans. of Horace, Aristotle's *Poetics*, Sophocles, Epictetus, etc. His wife, Anne Lefèvre (1654-1720), ed. Callimachus, Florus, Aurelius Victor, Eutropius, and the hist. which is attributed to Diotys Cretensis, all of which have been repeatedly reprinted with her notes. She pub. Fr. trans. of the *Amphitryon*, *Rudens*, and *Epidicus* of Plautus, with a good proface; of the comedies of Terence; of the *Plutus* and the *Clouds* of Aristophanes; and of Anacreon and Sappho. She also trans. the *Iliad* and the *Odyssey*, with a proface and notes.

Dacites (from Dacia, q.v.), class of volcanic rocks found in Dacia (q.v.), Greece, N. America, and elsewhere. These rocks consist largely of felspar mixed with quartz, hornblende, and augite; their structure is sometimes crystalline and sometimes vitreous. The older D. are often called porphyrites.

Dacoits (Hindustani *dakait*), members of armed gangs organised for robbery and murder. In 1887 there were reported to be over 9000 professional D. in India, and in one dist. alone (Gwallor) they murdered forty-six persons. After the war with Burma (1885), dacoity was prevalent in the country for sev. years.

Da Costa, Isaac, see COSTA.

Dacotahs, league of Amer. Indian tribes who inhabited the N. part of the Mississippi-Missouri basin, and after whom the states of Dakota are named. Their confederacy included seven 'nations,'

the prin. being the Sioux and Crows. They are believed originally to have been agriculturists until the introduction of horses, when they became rovers and hunters. In the wars of 1862 and 1876, brought on largely by the breaking of engagements by the U.S. Gov., thousands of Sioux perished, and in the latter campaign Gen. Custer and a whole brigade were annihilated.

Dacrydium, genus of Coniferae indigenous to Malay, Tasmania, and New Zealand, and sev. species are grown in Britain on account of their graceful appearance. *D. Franklinii*, the Huon pine, has more characteristics of the yew than of the pine, and grows in Tasmania; *D. cupressinum*, the commonest species in England, bears an edible fruit; *D. taxifolium*, the kakaterro-tree, is valued for its timber.

Dactyl (Gk. δάκτυλος, a finger), in Lat. and Gk. prosody, a foot consisting of one long and two short syllables; in Eng. prosody, one accented and two unaccented syllables. Dactyls, in prosody, is a name applied to metres which consist of a repetition of Ds., or of equivalent feet.

Dactylis glomerata, Cock's-foot Grass, a species of Graminae constituting a genus in itself. It is extremely common in fields and waste places of Britain during most of the summer months, and is also well known over continental Europe, the Mediterranean, and Asia. In a wild state it has a coarse bluish herbage, and is capable of enduring the drought of dry, sandy land, and forms good grass for pasture.

Dactylogy, see under DEAF AND DUMB.

Dactylopterus, genus of Cephalacanthida, or flying gurnards, remarkable for the immense, fan-like pectoral fins possessed by its species, and used by them when they spring into the air to escape voracious fishes. *D.* (or *Cephalacanthus*) *volitans* occurs in the Mediterranean; *D.* (or *C.*) *orientalis* in the seas of warmer climates.

Daddy-longlegs, see CRANE-FLY.

Dado, in classical architecture, the cube at the base of a pedestal. The name is also commonly applied to a series of mouldings, forming, as it were, a continuous pedestal, lining the lower portion of the interior walls of a building.

Dædalus, figure in Gk. mythology whose name is associated with the beginnings of sculpture and architecture. He was said to have been a descendant of Erechtheus, king of Athens, but the legends concerning him seem to be Cretan in origin. He is credited with making a wooden cow for Pasiphaë, wife of Minos, the king of Crete, and also with constructing the labyrinth for the Minotaur. Incurring the displeasure of Minos, D. made wings for himself and his son Icarus to fly from Crete. Icarus fell into what came to be known as the Icarian Sea, but D. reached Italy safely, and thence proceeded to Sicily. This story is possibly connected with the fact that D. was the reputed inventor of sails for ships. Many buildings and statues were attributed by

the later Gks. to him, and his name is representative of the time when wood was the chief material in use.

Dact, pueblo (township) in the S. of Luzon Is., Philippines. Port of call on the mouth of the D. R. Pop. 13,500.

Daffodil, see NARCISSUS.

Dafydd ab Gwilym (c. 1340-c. 1400), Welsh nature poet, b. at Bro Gynin, Cardiganshire. George Borrow, who trans. some of his poetry, wrote in *Wild Wales* that he had always considered him as 'the greatest poetical genius that has appeared in Europe since the revival of literature.'

Dagami, pueblo on the Binahaan R., S. of Tacloban, Leyte Is., Philippines. Is an important centre for traffic. Pop. 13,000.

Dagden, see DAGU.

Dagenham, urb. dist. in co. Essex, England, consisting of Chadwell Heath ward, Becontree Heath ward, and D. ward. The Becontree estate consists of a large number of houses erected by the London Co. Council. The church is ant., with a fine old tomb of Sir T. Urswyk, M.P. for London in 1461. There is a smallpox hospital. A high tide flooded 1000 ac. of land on Dec. 7, 1907. There is much marsh land. In 1921 the pop. was 9000; it is now 89,000, due partly to the inclusion of sev. dists. in one new urb. dist. and partly to the development of the Ford motor works estab. in 1929.

Dagger, short blade used for stabbing of very ant. origin. In medieval times it was called the *misericorde*, and served to penetrate the armour-joints of an overthrown adversary. It was worn attached to the sword-belt on the right side: the handle was often richly decorated. Other varieties were the poniard, dirk, and stiletto. Famous oriental Ds. are the Malay *kris* (kris) and the Indian *khutar*.

Daghestan, autonomous S.S.R. of the R.S.F.S.R., extending along the W. coast of the Caspian Sea, and inland over the N.E. spurs of the Caucasus range. The country is for the most part mountainous. The cap. is Makhachkala (the former Petrovsk) on the Kura (pop. 86,800). The inhab. include Lezgians, Tatars, Turkomans, Great Russians, and twenty-seven other nationalities; the language belongs to the Lezgian group of Caucasian languages. The traditional occupations of the inhab. are agric., but irrigation in recent years has increased production. Wheat, cotton, and soya beans are grown, and there is cattle and sheep-rearing. Oil is obtained from wells at Izerbash and there are engineering and machinery manufs. at Makhachkala. Hydro-electric power is provided by the R. Sulak. Area 22,390 sq. m. Pop. 930,500.

Dagnan-Bouveret, Pascal Adolphe Jean (1852-1929), Fr. painter, native of Paris, one of the foremost representatives of the *plein-air* school. Early in his career he was 'classical' in his subjects, but presently turned to scenes of everyday life, and his 'Wedding Party,' 'Le Pain bénit,' and, above all, his, 'Breton Pardon'

made him famous. As with Millet and Bastien-Lepage, his work became graver and deeper as years passed on, and in sympathy with the movement initiated by J. C. Cazin, he produced such masterpieces as the 'Last Supper' (1896) and 'Emmaus' (1898).

Dago (corruption of *Diego*), nickname given on Eng. and Amer. vessels to Sp., Portuguese, and It. sailors; also in the U.S.A. to It. immigrants.

Dagö, Dagden, Gioma, or Hiiumaa, largest of the Estonian is., near the gulf of Finland; separated from Oesel Is. (Livonian) by the Sõla Sound. Has rugged coasts, and is infertile except in the S. and W. The inhab. are engaged in fishing and cattle-rearing. Area 367 sq m. Pop. 17,000, of whom about 10,000 are Estonians, the remainder Swedes and Gers.

Dagoba, see **TORÉ**.

Dagobert I., Merovingian king of the Franks (628-38), son of Clovis II. He reunited the Frankish Empire, but it was divided again at his death.

Dagobert II., king of the Franks (674-679), who should have succeeded his father, Sigobert II., in Austrasia in 656. He was kept from the throne for eighteen years, and was assassinated after reigning five years.

Dagobert III., king of the Franks (711-715), succeeded his father, Childobert II., the third king of Neustria.

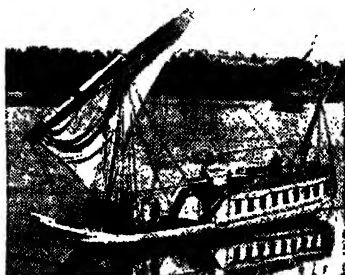
Dagon, Philistine and probably Canaanite deity (Judges xvi., 1 Sam. v.). It is uncertain whether his name is derived from *dag*, fish, or from *dagan*, corn; his idol, representing him as a kind of merman, favours the former hypothesis, but recent investigations seem to show that the cult was agric., and imported from Babylonia. The Philistines worshipped him as the god of both war and of harvests, and he seems to have been the male counterpart of Astoreth, or Astarte. He had temples in Gaza and Ashdod; the former was destroyed by Jonathan Maccabeus.

Daguerre, Louis Jacques Mandé (1789-1851), Fr. painter, inventor of the daguerreotype, forerunner of the present photograph, was *b.* at Cormeilles, Seine-et-Oise, and in early life was an inland revenue officer. Afterwards he became an artist, and with Pierre Prévost executed a number of panoramic views. In 1822 he estab. a pictorial exhibition called the diorama, which was so successful that he opened another one in London. But his great ambition was to produce permanent pictures by means of sunlight, and in this endeavour he was joined by J. N. Niepce, who had already been working for years at the same problem. Niepce *d.* in 1833, but D. persevered until he succeeded in producing such pictures on an iodised silver plate, called after him daguerreotypes. He wrote many works on this subject, including *Historique et description des procédés de daguerreotypie* (1839). His success was rewarded with the decoration of the Legion of Honour, and annuities for himself and Niepce's representative. See A. Mentrone, *La Découverte de la photographie en 1839, 1892*.

Daguerreotype, see **PHOTOGRAPHY**.

Dagupan, municipality and port in Luzon, Philippine Is., exports sugar, corn, copra, rice, and salt. Pop. 26,000.

Dahabiyeh, Nile passenger boat, something like a decked barge with a sharp prow, of shallow draught, and carrying one or more sails. Tourist Ds. are often propelled by steam.



A DAHABIYEH NEAR ASWÂN

Dahalac, or **Dahlak**, see **DHALAC**.

Dahl, Johann Kristen Clausen (1788-1857), Norwegian landscape painter. Particularly fond of striking effects in light and colour. One of his best pictures is an 'Eruption of Vesuvius,' another 'Dresden by Moonlight.'

Dahl, Michael (1656-1743), portrait painter, *b.* in Stockholm, who settled in London in 1688, obtained considerable patronage. He painted a portrait of Queen Anne, and also a series of portraits at Hampton Court. He was extensively employed by the nobility, but his work is not marked by any great originality.

Dahl, Vladimir Ivanovitch (1801-72), author and philologist, of Dan. family, but Russian by birth and training. After many years' service under the gov. he settled in Moscow (1858), and there, under the name of Lugansky, wrote many stories of Russian life. He also compiled a Russian dictionary, and a vol. of songs, folk-legends, and proverbs, which he had collected in various parts of Russia.

Dahlak, or **Dahalak**, is. group off the coast of Eritrea, situated in the Red Sea off the bay of, and about 30 m. E. of, the port of Massawa (Massawa). The group comprises three larger is., with numerous rocks, and was known to the Roms. for its pearl fisheries.

Dahlgren, John Adolphus Bernard (1809-70), Amer. admiral, *b.* at the Swedish consulate, Philadelphia. Serving in the U.S. Navy from 1826 to 1847, he was then transferred to the ordnance dept., and there invented the gun called by his name. When the Civil war broke out he was placed in charge of the navy yard at Washington. In 1863 he was made rear-admiral, and commanded the blockading fleet off Charleston until the end of the war.

Dahlgren, Karl Fredrik (1791-1814), Swedish humorist and poet. *Mollbergs Epistlar* (1813) displayed his skill in both capacities, and within a few years he attained a leading place in Swedish literature.

Dahlhausen, vil. of Germany, situated in the prov. of Westphalia, on the R. Ruhr, 6 m. from Essen.

Dahlia, genus of Compositæ composed of nine species of Mexican plants. In Britain sev. have been planted, but only *D. variabilis* has flourished, and given rise to very many beautiful varieties known to our gardens. In its wild state it is a bushy, herbaceous plant, 7 or 8 ft. high, with single purple or lilac flowers of no great beauty, but in cultivation it sports endless varieties in stature, leaves, and flowers, and in the double forms both ray and disk florets are ligulate. The name of the plant was given to it in honour of the Swedish botanist Dahl.

Dahlmann, Friedrich Christoph (1785-1860), Ger. historian and politician, b. at Wisnar, was one of the first to raise the Schleswig-Holstein question (1815). In 1837 he was banished from Hanover for upholding popular rights against the king; in 1848 he propounded a scheme for establishing a constitutional monarchy to include Prussia and all other Ger. states. His chief works were *Quellenkunde der deutschen Geschichte* (1830); *Politik* (1835); *Geschichte Dänemarks* (1840-43); and hist. of the Eng. and Fr. revolutions.

Dahme, tn. of Germany, situated in the prov. of Brandenburg, about 40 m. S.E. by S. of Potsdam. Pop. 5000.

Dahn, Julius Sophus Felix (1834-1912), Ger. historian and novelist, b. in Hamburg, where his father was a leading actor at the theatre. Felix D. studied law in Munich and Berlin, and became prof. successively at Munich, Würzburg, and Königsberg, and finally rector of Breslau Univ. in 1895. He wrote sev. important books on jurisprudence, but is more noted for his hist. and historical romances. The former deal with the very earliest records of Germany, his greatest work, *Die Könige der Germanen* (1861-1908), ending with the dissolution of the Carolingian Empire. His romances, *Ein Kampf um Rom* (1877), *Die Kreuzfahrer* (1844), and many others, have enjoyed great popularity in Germany. Besides these, he pub. a good many vols. of poetry, much of this also founded on early Ger. legends. A collected ed. of his stories and poems was pub. (21 vols.) at Leipzig. See life by H. Meyer, 1913.

Dahomey, colony in Fr. W. Africa with an area of 43,232 sq. m. and a pop. of 1,458,000 people. It is bounded on the E. by the Fr. mandated ter. of Togo, on the N. by the Fr. Sudan, and on the E. by the Brit. colony of Nigeria. It was conquered by the Fr. in 1892. It was formerly a Negro kingdom, for 200 years a centre of idolatry and heathen practices. The native army was famous for its detachment of 800 Amazons. The country is flat near the coast, while the interior consists of undulating plains and plateaux, with occasional stretches of forest. The

chief tns. are Porto Novo (pop. 23,500), Grand Popo, Kotonu, and Whydah on the coast, Paraku and Abomey in the higher country. The natives, Moslems or Fetish worshippers, grow maize, manioc, yams, potatoes, areca nut, and coffee. Palm oil and kernels are the chief exports. In the N. they rear cattle. They are of pure Negro stock. There are three railways. See J. Baillard, *Peuple noir*, 1935; M. J. Herskovitz, *Dahomey: an Ancient West African Kingdom*, 1938; C. Hanlin, *Occident noir*, 1947.

Dalhan, see KOREA.

Dail Eireann, Lower House of the legislature of Eire. The constitution of the Irish Free State (Saorstát Eireann), which came into force on Dec. 6, 1922, provided that the legislature (Oireachtas) should consist of the king, a Senate (Seanad Eireann), and a Chamber of Deputies (D. E.). D. E. is generally termed shortly 'the Dail'. The constitution of 1922 was repealed, but the present constitution, which came into force in Dec. 1937, contains substantially the same provisions as to the Dail. As in the case of the House of Commons of the United Kingdom, and of many another Lower House in the Brit. Commonwealth of Nations, alone D. E. among the legislative authorities of Eire has the control of the public purse, and the Gov. of Eire is chosen from the party (or parties, in the case of a coalition) having the majority in that house. D. E. is, therefore, the real power in the land, and it derives its authority from the direct vote of all citizens, without distinction of sex, of twenty-one years of age or over. Election is based on proportional representation, every citizen having only one vote, and the number of deputies is at present fixed at 138. The univs. are entitled to representation in the D. E. Unless the Oireachtas be sooner dissolved, a new Dail must be elected every five years. All members of the Dail must take an oath of allegiance to the constitution, and both the Irish and Eng. languages are official languages for the debates. The Dail is presided over by a chairman who has a deputy. The president of Eire summons and dissolves the Dail on the advice of the Prime Minister (Taoiseach). The Taoiseach is appointed by the president on the nomination of the D. E. The other members of the gov. are appointed by the president on the nomination of the Taoiseach with the previous approval of the D. E. The Taoiseach, the Tanaiste (vice-chairman), and the finance minister must be members of D. E. The other members of the gov. must also be members of D. E. or Seanad Eireann (Senate or Upper House), but not more than two may be members of the latter House.

'Daily Chronicle.' Coming into existence in London in 1855 as the *Clerkenwell News*, this paper was originally composed chiefly of small advertisements. In 1877 it was bought by Edward Lloyd and issued as a daily paper of Liberal views. It was purchased in 1918 by Mr. (later Earl) Lloyd George. In 1929 Wm. Harrison,

chairman of the Inveresk Paper Company, bought a controlling interest in the *D. C.*, together with its associate papers. With dramatic suddenness the *D. C.* closed its doors on June 1, 1930, when it was absorbed by the London Liberal paper, the *Daily News*, which appeared thenceforth as the *News-Chronicle* (q.v.).

'Daily Dispatch.' Describing itself as the 'National Newspaper of the North,' the *D. D.* is pub. daily from Manchester. Founded in 1900 by the Hultons, it was acquired by the Berry brothers in 1924, and is now one of the Allied Newspaper group. In general format the *D. D.* resembles the London popular press, and has a circulation in the neighbourhood of 1,000,000. The address of the *D. D.* is Withy Grove, Manchester.

'Daily Express.' After many years of a struggle for existence, the *D. E.* has today the largest circulation of any daily newspaper in Great Britain. It is the leading paper of the Beaverbrook group, and its present circulation is over 3,250,000 copies a day. Estab. in 1900 by Charles Pearson & Company, as a 4d. paper, but it was not until it passed into the control of Lord Beaverbrook (q.v.) in 1914 that it made any headway against the stern competition of the other popular dailies. Frank sensationalism is the main cause for the success of the *D. E.*, but it is an enterprising paper, makes a point of not suppressing news which is unwelcome and has not seldom counteracted foreign propaganda by sending its own special representatives to find out and tell the facts. It has been calculated that a circulation of 3,250,000 copies a day means that the paper is read by about 12,000,000 people. This success is due to an entertainment quality which has its appeal to a mass circulation, and although, as is the case with some of the other London popular dailies, the actual price to the purchaser is substantially less than the cost of production, this is offset by the great advertising revenue, and consequent large aggregate purchasing power of its readers. The most successful of the popular papers, it is the one with the highest rate per column inch for advertisement space. It has been the policy of the *D. E.* during the last few years to gather together a band of writers, each a specialist in his own subject, and to make their names familiar to the public. The success of this scheme has played no small part in the popularising of the paper. 'Strube,' whose 'Little Man' became a national figure, and 'Beachcomber' (J. B. Morton), the humorist, each have many thousands of devoted followers. H. V. Morton, who wrote graphic and human descriptions of travels in the Brit. Isles, had the largest public of all, but in 1931 he joined the *Daily Herald*. In politics the *D. E.* is Independent Unionist, with a strong leaning towards Imperial ideas. Lord Beaverbrook was a prime leader in the agitation for Empire Free Trade. In the Second World War the war dispatches of Alan Moorehead of the *D. E.* were especially good journalism, judged by the standards in any period and in any

country. The *D. E.* occupies a fine modern building in Fleet Street, not many yds. from its former home in Shoe Lane, Fleet Street, E.C.4. The *D. E.* is produced simultaneously in London, Manchester, and Glasgow.

'Daily Graphic,' the first illustrated morning newspaper in England, originated by Mr. W. L. Thomas in connection with the weekly *Graphic*, was estab. in Jan. 1890. Well-produced drawings and photographs were employed to illustrate the more interesting features of the day. In 1925, an agreement was entered into between the *D. G.* and Allied Newspapers Ltd., and the *D. G.* was absorbed by the *Daily Sketch* and issued with it jointly. The position has now been reversed and the two amalgamated papers are pub. as *Daily Graphic and Daily Sketch* (see DAILY SKETCH).

'Daily Herald.' In the long and curious hist. of journalism few attempts to found a journal have been more quixotic or determined than that which finally estab. the *D. H.* as Labour's first daily newspaper in England. Launched on April 15, 1912, with a capital of only £300, the paper did not even start with the blessing of the leaders of the Labour party. In these early days the paper existed as a 'small, lively but impecunious socialist newspaper that avoided death by the skin of its teeth so frequently that Northcliffe called it "the miracle of Fleet Street"' (Francis Williams). But the struggle to survive during the First World War years was almost too much, and during that period it was only found possible to publish weekly. It was in this form that George Lansbury ed. it from 1914 until 1919, when it resumed daily pub. In the days of Lansbury's editorship, the *D. H.* created controversy and kept up a high literary standard with one poet, Gerald Gould, as its assistant editor, and another, Osbert Sitwell, writing leaders—often in verse. But unable to support itself, it was (originally on the initiative of Ernest Bevin) constantly subsidised by the Trades Union Congress, although it was sufficiently independent in spirit to reject an offer of £75,000 made in 1920 by the Third International. Later, Lansbury remained manager while the editorship was given to a more-experienced newspaperman, Hamilton Fyfe, well-known war correspondent of *The Times* and the *Daily Mail*. Under Fyfe the circulation rose in four years from 130,000 to 450,000 but was not yet self-supporting owing to the lack of sufficient advertising revenue. Eventually, in 1929, the T.U.C. sanctioned a scheme for placing the paper on equal terms with its rivals. Retaining 49 per cent of its interest, with control of the paper's political policy, the *D. H.* passed into the hands of Messrs. Odhams Ltd., one of the largest firms of publishers in the country. The new paper was pub. on March 17, 1930, under the direction of J. S. Elias (later Lord Southwood), the man who had converted the *People* and *John Bull* from apparent failures into great successes. Popular newspaper

'stars' like Hannen Swaffer and H. V. Morton were secured at high salaries from other organisations, principally the *Daily Express*. H. G. Wells was asked to write on world problems and Edgar Wallace on crime, so that all tastes might be satisfied. The printing and format became at one bound equal to that of any other popular newspaper. Success came at once. The circulation jumped to well over a million in a night, and has been growing steadily ever since. Mr. Francis Williams relates that in his time as editor the circulation reached 2,000,000 copies a day and the paper had for a time the largest circulation of any daily paper in the world until it was outstripped by the *Daily Express*. But it had done so only as the result of enormous expenditure by Odhams, and in order to achieve progress more than £2,000,000 had to be sunk in the paper without immediate return; nor, despite the large sales, were any dividends paid on *D. H.* (1929) shares until well into the Second World War. Politically, the *D. H.* has considerably moderated its tone, news always being given first place. The *D. H.* is now willing to voice any subject of public interest, and not only Labour leaders, but distinguished writers from all walks of life, are regular contributors to its columns. A former editor of the *D. H.* records that he agreed to buy for £10,000 the serial rights in Sir Neville Henderson's record of events, entitled *Failure of a Mission*, despite the fact that the editor's private opinion was that much of the ex-ambas.'s judgment of events had been tragically wrong and misleading. (See Francis Williams, *Press, Parliament, and People*, 1946.) In the Second World War the dispatches of the *D. H.*'s war correspondent, A. B. Austin, were notable for their general interest and admirable journalism. The *D. H.* is pub. at 1d., simultaneously in London and Manchester, the London address being Wilson Street, Long Acre, W.C.2.

'Daily Mail.' First pub. in London on May 4, 1896, the *D. M.* not only introduced modern journalism, but is one of the most successful newspapers ever pub. Its founder, Lord Northcliffe, at that time Alfred Harmsworth, is by general consent considered the greatest journalist of all time, and the effects of his teaching can be seen in every newspaper office the world over. From the beginning, his policy with the *D. M.* was to give the public what it wanted, presenting the news of the day in such a manner that it could be taken in at a glance. The *D. M.*, when the first issue appeared, was entirely different from anything that had ever before been pub. It was brisk, and straight to the point. It was not afraid to speak its mind, and all the time it went to immense pains to provide its public with what really interested it. Over and above this it was priced at 1d. (it is now 1d.), and was willing to take up a cause or denounce an evil without a thought of the consequences. It should not be forgotten that when Lord Northcliffe started the *D. M.* with a capital of less than £100,000, and made so great a success of it that he

revolutionised the whole course of modern journalism, he did so because he was the first to appreciate that a new state-educated reading public had come into being for which existing papers hardly catered at all. It was for this public of the new elementary-school educated that he catered, and it was that public which gave him his enormous success. Whether now that a new public is coming into being a public of the secondary-school educated, a product of educational reform and extension, vast changes in intellectual standards and public taste will follow, and whether the demand for newspapers will be affected, is a moot point. Under Northcliffe's direction the circulation of



LORD NORTHCLIFFE

the *D. M.* grew until it was far larger than that of any other paper, and sev. amazing scoops during the Boer war consolidated its position as the paper for the man in the street. During the First World War the *D. M.* by unceasing propaganda urged the placing of Lloyd George in charge of munitions; and throughout the war period it played a lively part in the conduct of State affairs. Throughout this period, and until his death in 1922, Lord Northcliffe was the dominant personality behind the *D. M.* and its companion papers, the *Evening News* and *Sunday Dispatch*, as he was behind the many other pubs. he founded and ran (see NORTHCLIFFE). The *D. M.* is now owned by Associated Newspapers, Ltd., a company controlled by the late Rt. Hon. Viscount Rothermere, Lord Northcliffe's brother, and now by the latter's son, the Hon. Esmond Harmsworth, second Lord Rothermere. Politically it is Conservative in principle, but more often than not takes an independent line. The *D. M.* organises many exhibitions, one of the most successful of which is the ann. Ideal Homes Exhibition. It has also fostered

many movements, taking an especial interest in flying, and before and after the First World War doing much to assist pioneer airmen by the offer of large prizes, amounting to as much as £10,000. The advertising power of the *D. M.* is famous throughout the world. Its front page alone used to fetch £1700 for a single insertion. It was for a time the only popular daily left in London which still gave up its front page to advertising. Many famous writers have contributed at one time or another to its columns, and Tom Webster, probably the best-known sports cartoonist in the country. Published simultaneously in London and Manchester, its circulation is one of the largest in the world. On more than one occasion it has exceeded the 2,000,000 mark. Other eds. of the *D. M.* included, before 1939, a Continental one pub. from Paris; an Atlantic ed., printed and pub. on board sev. of the larger liners; and a weekly ed. The *D. M. Year Book*, founded in 1901, is popular among all classes for reference purposes on general subjects. The head office of the *D. M.* group is Northcliffe House, Tudor House, E.C.4.

'Daily Mirror.' In many ways the *D. M.* is the best example of Lord Northcliffe's genius as a journalist. Founded in London as a penny daily for women on Nov. 2, 1903, under the editorship of Mrs. Mary Howarth, it was obvious, after a few issues, that there was no public demand for such a paper, and it seemed inevitable that the paper must die. Defying defeat, Lord Northcliffe converted it in twenty-four hours into an illustrated newspaper, and in its new form it was soon firmly estab. The success of this change consolidated Northcliffe's position as the journalist who would not own defeat. In 1914 the first Lord Rothermere became chief proprietor of the *D. M.*, and a year later founded its companion paper, the *Sunday Pictorial*. The object of both papers has always been to provide the latest news in pictures, and many daring feats have been accomplished in carrying out this policy. One of the most popular features both of the *D. M.* and the *Sunday Pictorial*, was that devoted to the doings of Pip, Squeak, and Wilfred, the first two of whom were introduced to thousands of delighted children in 1919, while Wilfred appeared in 1920. It had a circulation of 2,013,943 for its King Edward Memorial number in 1910, and of 3,005,430 copies for its Princess Mary's wedding number in 1922. During the Second World War the paper was threatened with suppression for a cartoon which seemed to suggest that seamen were risking their lives in order that bigger profits might be secured by the oil companies; for a leading article which said that those who aspired to army leadership should be 'brass buttoned, boneheaded, socially prejudiced, arrogant, and fussy,' and with a tendency to heart disease and apoplexy; and for the anti-snobbery criticisms of 'Cassandra.' There were few real or imagined abuses that 'Cassandra' did not attack, and the War Office was his particular *bête noire*. After

the official warning, however, 'Cassandra's' column was dropped, he was called up and joined the army, and in due course—such being the Brit. way—was appointed editor of an army newspaper (see on this Williams, *Press, Parliament and People*, 1946). The *D. M.* is pub. from Geraldine House, Rolls Buildings, Fetter Lane, E.C.4.

'Daily News,' see 'NEWS-CHRONICLE.' 'Daily Sketch.' Founded in Manchester in 1909 by Sir Edward Hulton as a penny picture paper, the *D. S.* relied mainly upon its news pictures, aided by brightly written articles, theatrical and society features, and news served up in an easily digested form, for maintaining its circulation of 700,000 copies daily. Politically, the *D. S.* was independent, showing, as is the case with its rival, the *Daily Mirror*, little interest in politics except from a pictorial standpoint. In 1925 the *D. S.* absorbed the *Daily Graphic*, thus leaving only two picture papers in London. The *D. S.* was, later, acquired by Allied Newspapers, Ltd., and now controlled by Lord Kemsley (formerly Sir Gomer Berry). In 1946 the title was changed to *Daily Graphic* and *D. S.*, the former in much the heavier type, the publishers being now The Daily Graphic and Sunday Graphic, Ltd., of Kemsley House, 200 Grays Inn Road, London, W.C.1.

'Daily Telegraph.' The first penny newspaper pub. in London, the *D. T.* can look back upon as fine a past as most existing newspapers. Founded in a more or less casual manner by a printer in June, 1855, it passed, shortly afterwards, into the hands of the father of the second Viscount Burnham (q.v.), and remained in that family until 1927, when it was sold to Sir Wm. Berry, Bt. (q.v.) (created Baron Camrose of Long Cross in 1929), Sir Gomer Berry (later Lord Kemsley), and Sir Edward (late Lord) Hliffe. The present proprietor is Lord Camrose. In 1930 the price, which had been 2d. for many years, was reduced to 1d., and the general size and form were altered to meet modern requirements. These changes were apparently successful, for the circulation rose to well over 200,000, and is now over 650,000. The *D. T.* has always specialised in foreign news, and had many famous correspondents in all parts of the world. It was owing to the enterprise of the *D. T.* that Stanley was enabled to find the Congo, his undertaking having been originated by the paper, which also bore the expense of his search for Livingstone. In the same way, the *D. T.* assisted in the Assyrian discoveries of George Smith, and the exploration of Mt. Kilimanjaro by Sir Harry Johnston. Like the *Daily Mail* the *D. T.* was responsible for a number of scoops during the Boer war, and the rivalry between the correspondents of the two papers was intense. Politically, the *D. T.* began as a Liberal paper, but at the present time it is frankly Conservative. Many notable writers have been associated with the *D. T.*, including Edward Dicey, Frank Lawley, Clement Scott, George Augustus Sala, W. L. Courtney, for so long the

editor of the *Fortnightly Review*, who was literary editor for many years, and J. L. Garvin, later the editor of the *Observer*. The *D. T.* specialises in the issue of special supplements, many of which are of permanent value. The *D. T.* is a more serious and restrained paper than its popular rivals, deliberately quieter in its selection and display of news, deliberately more solid in its selection of feature articles, and more comprehensive in its reporting of political, industrial, economic, and international affairs; and in part its success is due to its manifest attraction to a somewhat non-committal, cautious type of middle-class reader with a serious outlook on life. The foreign correspondents of the *D. T.* are especially reliable for intelligent and balanced accounts of the ways and policy of the countries to which they may be accredited. The new *D. T.* building, erected in Fleet Street after the First World War, is the finest newspaper office in the country, and allows ample room for expansion. The *Sunday Times*, also owned by Lord Camrose, is housed in the same building. The address is 135-36 Fleet Street, London, E.C.4.

'Daily Worker,' official paper of the Communist Party of Great Britain. Founded in 1930. During the Second World War the War Office and Foreign Office were anxious to restrict the facilities given to the paper to a minimum and were adamant that it could not be allowed to have an accredited war correspondent. The Cabinet formed the view that the paper was persistently publishing material calculated to foment opposition to the war, and in Jan. 1941 the gov. invoked Section 2D of the Defence Regulations, first to warn and then to suppress the *D. W.* The Communist Party was at that time opposed to the war, which it regarded as an 'imperialist' adventure. It did not change its mind until Germany invaded Russia, after which it became a passionate advocate of victory.

Daimiel, tn. of Spain in the prov. of Ciudad Real, 20 m. E. of that city, and 60 m. S.S.E. of Toledo. There are manufs. of woollens and linens, and distillation of brandy. There is also a salt lake. Pop. 17,000.

Daimids (great names), the feudal nobles of old Japan, who within their own domains were almost absolute, paying only nominal allegiance to the Mikado; the Samurai were their military retainers. Although the Shogun (temporal ruler) and D. lost their power in the revolution of 1868, the governing classes of Japan are still mostly of Samurai descent.

Daimler, Gottlieb (1834-90), motor pioneer, b. at Schorndorf, Württemberg. After gaining experience in Germany and at Whitworth's, Manchester, he assisted Dr. Otto in the development of his gas engine (Cologne, 1870), and became director of his factory. Conceiving the idea of increasing the power of oil and gas engines by making the working parts lighter, with greater velocity of rotation, he produced the first motor bicycle in 1885, followed in 1887 by a petrol-driven

car. He founded the Daimler Motor Co. at Cannstatt in 1890. Benz of Mannheim, Panhard and Levassor of Paris, and others took up the idea, and D. engines have become universal.

Dai Nippon, see **NIPPON** and **JAPAN**.

Dairen, or **Dalny**, the customs port for Kwantung, China. At the end of 1937, when the leased ter. of Kwantung was under a Jap. governor-general, the seat of administration was at D. (or Taïrend, formerly Dalny). In 1945 the ter., including D., was restored to China. The S. Manchuria Railway connects D. with Mukou and D. is also connected by rail with Changchun (696 m.). The Chinese name is Talien-Wan. Pop. of tn. and dist., 280,000.

Dairy. The word *D.* is the same as the Middle Eng. *deirie*, which was the place where the *dey* or maldservant worked. It now denotes the place where the milk in its natural form and the cheese and butter are prepared. The milk of the cow is used all over the world for D. purposes, but in certain regions physiological conditions have led to the dependence on sheep, goats, reindeer, camels, etc., for milk. In no other dept. of agriculture has the celerity of advancement been greater than that in D. farming. In Great Britain the demand for milk and butter made by the people of industrial centres distant from the traditional dairying, or, in fact, cheese-making dists., such as Cheshire, Ayrshire, Somerset, and the vale of Glamorgan, resulted in rapid expansion of the D. business. The invention of the centrifugal separator about 1878 created a revolution, whilst smaller progressive reforms may unquestionably be traced to the persistent exertions of the Brit. D. Farmer's Association and to the D. shows held annually under its auspices since the year 1876. Moreover, this association acted as pioneer in the matter of providing technical instruction in D. farming; for it founded a D. school in the vale of Aylesbury, a school later estab. in Reading under the name of the Brit. D. Institute (now the National Institute for Research in Dairying, under the Executive Council of the Imperial Agric. Bureau), and its example was followed by many municipalities all over the country.

Improvements in Appliances.—In all modern Ds. centrifugal separators are now in use, but without such an appliance cream is separated by means of the milk-pan, skimmer, and cream crock. The first is a shallow, lipped pan made of white porcelain, enameled iron, or tinned steel; the second—a still shallower dish—serves to lift the cream from the surface of the milk in the pan into the earthenware cream crock, where it remains for one or two days before churning. By the mechanical process of cream separation, a bowl containing the fresh milk is made to rotate sev. thousand times every min.^{ts}. In this way the lighter butter fat is collected to the centre of the bowl, and thence removed through a tube, the watery and heavier portion of the milk being driven out from the outer zone

through another tube. Small machines for 10 up to 100 gallons an hour are often worked by hand still, but separators worked by horse or steam power can deal with four or five times that quantity in the same time.

Pasteurisation has made milk 'safe' despite all the vicissitudes of transit. Electricity has brought hot water and refrigeration to the remotest farm. Pasteurisers, so named after the *M^r*. scientist, Pasteur, have been designed so as to destroy the tubercle and other bacilli which may be communicated to human beings through the medium of milk. It is best to heat the milk in closed pasteurisers for about 20 min. at 140° F., for it is found that a lower temp. for a longer period is as effective as a higher temp. (180° F.) for a shorter time (10 min.). D. engineers have now devised excellent plant for the proper filtration or pasteurisation of new milk in large dairies. The new milk is allowed to flow into closed receptacles, in which it is raised to the required temp. and kept in a state of continual agitation so as to prevent the formation of the scalded layer. It is then necessary to reduce the temp. of the milk to that of water; otherwise its keeping properties are seriously impaired. This result is most easily achieved by allowing the milk to run down the outside of a metal refrigerator, corrugated so as to increase the cooling capacities of the machine and filled inside with cold water. The water is kept continually running, the refrigerator being fed by a cistern. Butyrometers are the most convenient machines for testing the amount of fat in milk. Properly graduated testing tubes are filled with the milk to be tested and fixed on a rimmed metal dish which is then made rapidly to revolve. Standard sulphuric acid and warm water are required, chemical action as well as the principle of centrifugal force being involved in the testing. Ds. in most urb. centres bottle their milk for delivery to householders.

The following are the appliances needed for cheese-making. Cheese vats are made both rectangular and round, and may be double-jacketed, the outer vat being supplied with pipes for steam. The rectangular vat, which is moved on wheels, is best made of tinned steel for the inner case, and iron for the outer. Double-tinned sheets of steel, fitted on the outside with bands, make a strong circular vat. Curd knives, for freeing the whey from the coagulated mass, should be made of fine steel with keen edges. A special machine has been devised for subjecting such hard cheeses as Cheddar to continual pressure: no pressure is applied to soft cheeses, which are simply made into the requisite size and shape in metal moulds. Cheeses should always be allowed to ripen in a room fitted with easily turned shelves. Diaphragm tub-shaped wooden churns are still used for butter-making. The butter is lifted out of the churn by wooden butter scoops. A machine, known as the 'Delaiteuse' butter drier, and worked on the centrifugal force

principle, has come into use in order to squeeze out the superfluous moisture.

Dairy Factories originated in America and thence spread to Europe. The first was a cheesery founded by Jesse Williams in 1860 in Oneida co., New York. His success in the venture led to the rapid estab. of similar factories and also of creameries, or butter factories, all over the States and Canada. Such was the mushroom growth of these factories that by 1866 there were 500 cheese factories in New York state alone. In England cheeseries were first instituted in 1870, when one was set up in Derby and another in Longford. But the enormous increase in the supply of milk from country to urb. dists. leaves a comparatively small surplus of milk for conversion into butter and cheese, a fact which accounts for the scarcity of D. F. in England relatively to the U.S.A. Moreover, foreign butter from Denmark, etc., and empire butter from Australasia, etc., are superior to the average butter produced in the United Kingdom. The cheese and butter factory system was introduced from America into Denmark, Ireland, France, etc., with surprising success. To-day one trained butter-maker can work up in a creamery the cream taken from 700 cows. His product finds a speedy market by reason of its even quality. It is packed in refrigerator cars, and within two weeks of its churning can reach a consumer many thousand miles distant. Artificial fats are frequently added to skim-milk to produce a poorer kind of butter, full-milk cheese being manufactured at the same time in the same factory. In 1855 Grimwade first made use of powdered milk in England, and in America a combination of whole milk powder and extract of malt was sold in 1883. Since that time many patented processes have placed a number of dried milks on the market. The first condensed milk plant of America was estab. by Gail Borden in 1856 at Wolcottville, Connecticut. John B. Meyenberg patented his process for supplying unsweetened evaporated milk in hermetically sealed tins in 1884. A still further product of America is the factory-made ice cream. In 1851 Fussell of Baltimore estab. a plant for making ice, and afterwards erected other factories in Washington, Boston, and New York. Ice cream which is sold commercially must contain not less than 7-14 per cent of milk fat.

Dairy Farming. Cows should be allowed plenty of pure water: epidemics of typhoid fever have been traced to cows drinking contaminated water. When the crops of grass, lt. rye-grass, vetches, or clover fall in the autumn, the cow must be given brewer's or distiller's grains or turnips. If the supply of turnips, however, is overdone, the butter and milk acquire an unpleasant flavour. Mangels and swedes are good substitutes for turnips. Milk cows should have about six pounds of concentrated food, such as oil-seed cakes, bran, and various farinaceous meals like bean meal, each day. Thirty pounds of dry food a day are a sufficient allowance

for a cow in full milk, but the food mixture should be varied as much as possible. Cleanliness is absolutely essential in the cows, their sheds, and the milkers. The cow-houses, moreover, must be well lighted, ventilated, and drained. The milking parlour is preferable to the ordinary cow-shed because it saves time in cleaning and washing down, no hay or straw comes into the building when cows are milked, and this makes clean milk production easier. Dust in the air from hay or straw is a fruitful source of dirty milk. Because the cow comes to the milker

succulent grass during the summer may lead to a full supply of milk. On the first appearance of frost cows should be sheltered at night, even though this curtails the milking period. In time all cows dry off a few months before calving again in the spring. Cows will give a good supply of milk for ten years. In this connection it may be pointed out that England has no pure dairy breed of cattle to her credit, the dairy shorthorn, our most numerous breed and the pioneer of the dairy revival at the turn of this century, still serving a dual-purpose standard



United Dairies

DAIRYING : MECHANICAL MILKING

instead of the milker going to the cow, there is a shorter journey for the milk to reach the cooler. If a milking machine is in use, there is less piping to keep sterile, and the vacuum is more easily controlled. The best-designed buildings for a dairy of about fifty cows should consist of two covered yards, separated by the milking parlour, the cooling room, and the boiler and sterilising unit. Each covered yard is divided down the centre; and the doors and gates are large enough to admit a cart or wagon to remove the dung or to carry straw. The cows are collected before milking in one yard and, after going through the parlour, go into the other. There are two bull pens, a number of calving pens, and calf pens in a third covered yard. Every cow should be examined at least twice a year by a veterinary surgeon, and the milk of any cow suspected of tuberculosis or other disease must be rejected until the animal has been inspected. For summer dairying it is arranged that the cows calve in the spring, so that abundance of

—which is justified in a European country that must rely for meat on its dairy herd. Records of performance continue to show annual improvements in yield, and the best British herds already hold their own with dairy cattle in other countries, like Denmark and Holland. Where large farms have to be supplied with milk all the year round, winter dairying is the rule. With this system cows are allowed to calve at all seasons so as not to interfere seriously with the supply at any one period. For this supplies cows are usually milked three times a day; otherwise morning and evening only. The distribution of milk was revolutionised by the growth of huge railway systems all over the country, and also by the invention of refrigerators. The former allow milk to be brought to London daily from places as distant as Derby, Gloucester, Dorset, etc., and even from Scotland, and the latter ensures the goodness of that milk by increasing its keeping qualities. Also, the bulk carriage of milk in glass-lined containers has overcome the

noise and tedium of rolling churns on railway platforms.

Practically all the milk which is brought to London comes from different parts of England; other big tnq. are similarly supplied. The estimated production of milk for human consumption in England and Wales, according to the Ministry of Agriculture, is over 1,000,000 gallons a year, and the estimated value of milk and dairy produce in England and Wales for the five years 1932-37 averaged £50,000,000 (excluding poultry and eggs, which were valued at £20,000,000). Practically all the butter and cheese made in the country is used for home consumption, and large imports of foreign milk products are made annually—butter chiefly from Denmark, New Zealand, Australia, and Ireland; cheese from New Zealand, Canada, the Netherlands, Italy, Australia, and America. The ann. review issued by the Imperial Economic Committee shows that the consumption per head of pop. in Britain of dairy products in 1936-37 averaged, for butter, 25 lb.; margarine, 8 lb.; cheese, 8 lb.; and eggs, 157. Milk and butter prices having, in recent years, fallen to an unremunerative level, the gov. set up a Milk Marketing Board in 1934 to regulate the purchase and sale of milk through a Central Distributors' Committee. This board also controls service artificial insemination from pedigree bulls, and the standard of stock for D. is being improved thereby. In 1947-48 the gov. subsidy for milk (including welfare schemes) was £65,000,000, and for milk products £37,200,000. If the subsidy had been completely removed the price of milk to the public in 1949 would have been 11½d. a quart instead of 10d., and that of butter 2s. 7½d. instead of 1s. 4d. a lb. See also MILK. See R. Wallace and J. Watson, *Farm Livestock of Great Britain*, 1923; J. Porter, *The Stock Feeder's Companion*, 1927; H. Henderson, C. Larson, and F. Putney, *Dairy Cattle Feeding and Management*, 1938; B. M. Cookson, *Dairy Cows and their Management*, 1944; F. Garner, *The Cattle of Britain*, 1944; and *British Dairying*, 1946.

Dais, genus of plants, belonging to the order Thymelaceae, or Daphnaceae. The bark of *D. malagascariensis* is made into paper.

Daisy, name given to sev. composite flowers, but is applied in particular to *Bellis perennis*, the little plant which flourishes all over Europe and is common in fields and on lawns. The Fr. call the D. 'marguerite,' from the Gk. word *margarita*, a pearl. The head is composed of yellow, tubular, and hermaphrodite florets of the disk, and white, ligulate, and pistillate florets of the ray; in wet weather and at night the surrounding involucre of bracts covers the florets. The dog D. or ox-eye D. belongs to the *Chrysanthemum* genus, and is known technically as *C. Leucanthemum*, as also are the midsummer D. and the moon D., while the Michaelmas D. is a Brit. species of *Aster*.

Dajaukku, see DETOCHES.

Dakahlieh, *Dagahlia*, or *Datahlieh*, prov. of Lower Egypt, with an area of

approximately 1020 sq. m. It is one of the most fertile provs. The chief tn. is Mansoorah. Pop. (1947 census) 1,414,284.

Dakar, cap. of Fr. W. Africa, and the only commodious port of Senegal. By a decree of 1924 D. and its surroundings, including Goree (or Goré) and Rufisque, were formed into a special ter. called *Circonscription de Dakar et Dépendances*. D. holds a commanding position on the route between W. Europe and Brazil and S. Africa, being situated on the gulf of Goree and on the E. side of Cape Verde. The tn., a fairly healthy one, possesses regular streets and sev. fine public buildings, notably the palace of the governor-general. The harbour is formed of two jetties, and there are three commercial docks with spacious quayage alongside which ships drawing 26 ft. are able to moor. D. is the only city, in the European or occidental sense, in the whole of W. Africa. The absence of any significant settlement on or near its site until the late nineteenth century heightens the paradox of its present ranking position among rivals, whether newly founded or centuries old. It was in 1857 that the Fr. authorities landed a force of marines and took formal possession. A fort was built on D. Point and, at once, many inhab. of Goree moved there to build houses under its protection. The Mesagories Impériales (later Maritimes) soon thereafter ran a monthly service between Bordeaux, D., and Rio. Yet for a quarter of a century after these beginnings D. made little progress. In the 1870s Goree felt a new wave of prosperity after the decline that had resulted from the abolition of the slave trade. The pop. of D. was then only 3000. The capacity of the harbour was greatly enlarged between 1898 and 1912. The extended city incorporated two or three African vlls., and, for some years, the thatched huts of the natives, close-clustered in irregular African fashion, continued to mingle conspicuously with the regular blocks of masonry houses put up by the Fr. Gov. for its officials or by the trading and shipping companies. During this time most of the remaining Goree merchants moved to D., and, in the first decade of the new century, port business trebled in volume; and, in 1905, a submarine cable was laid from D. to Brest. The First World War put a stop to gov. expenditure on D., and checked nearly all development. Afterwards, however, came a long series of public works in conjunction with extensive private undertakings. The marine arsenal is the largest factory in D. Both commercial and port functions greatly expanded between the two world wars. The most recent available statistics (1933-34) show that more than 1,000,000 tons of merchandise were carried on 2250 ships, the chief commodities imported being petroleum and coal; others were rice, wheat, and sugar.

D. is the 'African Gibraltar.' The improvements increased the value of the port as a naval base, particularly for submarines. In 1938 work was begun to

make a station of the first class, and so vigorously was it prosecuted that it was nearing completion when the Second World War broke out. A floating dock supplements the fixed dry dock. There are concealed tanks for petroleum storage. The most ambitious improvement effected was the construction of an outer roadstead by building a 2500-metre jetty S.-eastward from D. Point, extending into eight fathoms of water, and providing anchorage calm enough for warships and other craft up to 35,000 tons. Associated with naval expansion has been the reinforcement of the land fortifications on Goree, E. of D., on Point Bel Air and on Cape Manuel. Warplanes can land in Haume Cove, and there are large warehouses on the Peanut Plain, all supplementing the naval and land defences. Onakee, near by, contains a modern civil aerodrome, whose tracks enable heavily loaded planes to rise for the non-stop crossing from D. to Natal. At Haume there is a civil and military air-base. Before the Second World War an Air France line served the interior of the country, and by Bamako and Gao joined up with the great N.-S. airway of the line Air Africa.

The importance of D.—significantly referred to by President Roosevelt as 'the Atlantic fortress of Dakar'—for the security of the W. hemisphere became obvious in the Second World War. D. commands terrestrially and in the air the immense federation that France created in W. Africa, ters. capable of being utilised against one or other sets of belligerents as reservoirs of men and material and as departure bases of attacks and campaigns. Soon after the collapse of the Fr. forces in France in 1940 Gen. de Gaulle (q.v.), commanding the Free Fr. forces, made an attempt to take D., but had to abandon his campaign there. He had erroneously believed that a large proportion of the Fr. pop. of Senegal would support him, as they had done in Fr. Equatorial Africa. But the Vichy Gov., learning of his project, sent three cruisers from Toulon, which unaccountably were allowed to get through the Straits of Gibraltar, and eventually arrived at D. On the morning of Sept 23 (1940) de Gaulle sent emissaries to land at D., but they met with a hostile reception and were fired upon, while the batteries of the port opened fire on de Gaulle's warships and also on Brit. ships which were standing by to render assistance to de Gaulle. Fire from the Fr. battleship *Richelieu* was joined to that of the shore batteries and was returned, and the Brit. naval commander warned the Fr. authorities that submarines would be engaged if they left harbour. But in spite of this warning, three Fr. submarines attacked the Brit. ships, with the result that two of the attacking submarines were sunk. The forces of de Gaulle tried to make a landing but were not successful, and, when it became evident that only a major operation of war could secure the fall of D., it was decided on political grounds to discontinue hostilities, as it had never

been the intention of the Brit. Gov. to enter into serious warlike operations against those Frenchmen who felt it to be their duty to obey the command of the Vichy Gov. Following the allied landings in N. Africa, Adm. Darlan (q.v.) announced on the Algiers wireless on Nov. 23, 1942, that Fr. W. Africa had put itself under his orders, thus showing that it remained 'faithful to Marshal Pétain' (q.v.). This announcement appears to have been made in the name of the Dakar Gov. of M. Boisson coupled with that of Gen. Giraud. In effect the strategic significance of Boisson's adherence to Darlan, as well as to Gen. Giraud, lay more in the certainty that thenceforward D. would in no conditions become available to the Axis (q.v.) than that it would be available to the forces of the United Nations (q.v.); but, in the result, D. soon became available to the Allies with its fully developed and well-equipped port and repair base. Pop. (tn.), 45,000; (Circumscription), 75,000.

Dakiki (Daqiq), Abu Mansur (fl. 1000 A.D.), Persian poet and a native of Tus or Bokhara. He was court poet to Prince Nûb II., successor of Mansur I. on the throne of Persia (976 A.D.). He wrote many *ghazals* or odes (love-ditties, wine-songs, and religious hymns), and openly professed the Zoroastrian creed. He was charged by Nûb to turn the *Khodâ'inama* (or *Khodai-nameh*) into Persian verse. This, which in the old dialect meant 'Book of Kings', was the Parsi collection of legends and traditions of the heroic age of Iran. D.'s labours were abruptly terminated by his assassination, by which time he had written about 1000 distichs. Firdausi, whose great epic, the *Shâhnâmâ* ('Book of Kings') was the continuation and completion of D.'s work, claimed to have been inspired in dreams by D.

Dakin, Henry Drysdale (b. 1880), Eng. chemist; occupied in research work at Herter Laboratory, New York city (1905-1920). During the First World War he made a solution for the treatment of wounds which was developed, in collaboration with Alexis Carrel (q.v.), as the Carrel-Dakin treatment of wounds by regular intermittent irrigation with D.'s solution. Known for researches in biochemistry, especially on enzymes. Awarded the Davy medal of the Royal Society (1941). Co-author of *Handbook of Chemical Antiseptics* (1917).

Dakor, tn. of India, in the Bombay presidency 30 m. from Baroda. Its temple with an image is visited by pilgrims in Oct. and Nov. Pop. 10,000.

Dakota, also called *James River*, from the name Rivière de Jacques given to it by early Canadian *voyageurs*. It rises in N. D., U.S.A., and flows S. through S. D., reaching the Missouri near Yankton, after a course of 600 m. Its valley is very fertile.

Dakota, North, see **NORTH DAKOTA**.

Dakotas, see **DACOTAHS**.

Dal, riv. in Sweden, 250 m. in length. It is formed by the confluence of the Rs. Oster and Vester Dal Elf, and enters the gulf of Bothnia about 60 m. from Upsala.

Daladier, Édouard (b. 1884). Fr. statesman, son of a baker. Became a school teacher; served in the First World War as a captain, being awarded the *croix de guerre* and *légion d'honneur*. After the war was elected as a Radical-Socialist deputy. Minister of colonies in 1924, of war in 1925, of public instruction in 1926; succeeded Herriot as chairman of the Radical-Socialist party in 1927. Premier for some months in 1933, again for a short time in 1931, and from 1936 served as war minister in various Popular Front govts. He was Premier again April 1938–March 1940, remaining also in charge of the war ministry. Employed conservative methods in his efforts to restore financial and economic order in France. Was one of the signatories of the Munich Pact (*q.v.*), Sept. 1938. He was regarded as France's 'strong man,' ruling by decrees and arranging for a two-year postponement of Fr. elections in July 1939. His subsequent majorities were no longer Popular Front (Communist-Socialist-Radical), but now extended considerably to the Right. When the Chamber became critical of his personal rule and demanded a more vigorous prosecution of the war, D. resigned (March 21, 1940). He remained for a time, first the war ministry, then the foreign ministry under Reynaud, but was removed from the gov. in June 1940, and after the Fr. collapse he was detained by the Pétain Gov., and interned by the Gers. He was released in 1945. Pub. *The Defence of France* (1939).

Dalaguete, municipality in the is. of Cebu, Philippine Is. Corn, coffee, cocoa, manila hemp, etc. are produced and fish caught. Pop. 30,000.

Dalai Kuli, small is. in Lake Kosso, Kosso Gol, or Kosgol, Mongolia, 130 m. S.W. of Lake Balkal. The is. is held by the native Buddhists to be the navel of the earth, and is therefore considered holy ground. Lat. 51° N., long. 100° 30' E.

Dalai Lama. In Tibet the arch priest of Lamaism, revered as the living incarnation of deity, always present on earth in him. See LAMAISM.

Dalai Nor (Holy Sea): 1. Lake of Mongolia, near the frontier of E. Siberia and the great bend of the Argun R., in lat. 49° 10' N., long. 117° 20' E. Also called Kulun Nor. It is fed by the Kerulen R., but is now rapidly drying up, and has ceased to send any water into the Argun. 2. Small lake of Inner Mongolia in lat. 43° N., long. 116° 30' E.

Dalarna (the Dales), or **Dalecarlia**, ant. prov. of Sweden, lying N.W. of Stockholm, and stretching from the Norwegian frontier nearly to Gefle on the Baltic. The dist. is now called Kopparberg. The Dalesmen still retain their ant. costume and dialect, and have always been noted for bravery and independence. In 1434, led by a miner, Engelbrecht, they rebelled against the tyranny of Eric of Denmark, and when, in 1523, Gustavus Vasa freed Sweden from the Danes, his best helpers came from Dalecarlia. The dist. is to a great extent covered with forest, but agriculture is carried on where possible, and there are very productive iron mines,

with large works for smelting, blasting, and rolling, also saw-mills and wood-pulp factories. Copper mines at Falun, the chief tn., are almost exhausted. Pop. about 260,000.

Dalbeattie, bor. and tn. of Kirkeudbrightshire, Scotland, situated on D. Burn, 14 m. S.W. of Dumfries. There are important granite quarries in the neighbourhood; the materials for the Liverpool docks, Thames embankment, and other public erections have been taken from here. There are also granite-polishing works, dye works, and paper mills. Small vessels can approach quite close to the tn. up the mouth of the burn. John Balliol, founder of Balliol College, lived in the neighbourhood. Pop. 3000.

Dalberg, name of a noble Ger. family whose ancestors in the twelfth century were hereditary chamberlains of the bishop of Worms. In 1494 they had become so important that Maximilian I. granted them the right of claiming the first knighthood at each coronation.

Johann Dalberg (1455–1503), bishop of Worms, a great scholar; founded the first Gk. chair at Heidelberg.

Karl Theodor von Dalberg (1744–1817), archbishop of Mainz and chancellor of the empire, a friend of Goethe and Schiller, ruined his career by joining his fortunes with those of Napoleon. The D. family is extinct, but its last heiress married an Englishman, and her son was created first Baron Acton.

D'Albert, Charles Louis Napoleon (1809–1896), musical composer, b. at Nienstetten, near Hamburg; became ballet-master at Covent Garden, London. Later he left his post to take up the teaching and composition of music, settling at Newcastle. He composed many popular dances, including the *Bridal Polka*, *Sweetheart's Waltz*, *Sultan's Polka*, and *Edinburgh Quadrilles*, and was a favourite master for both music and dancing. He wrote *Ball Room Etiquette* (1835).

D'Albert, Eugène Francis Charles (1864–1932), Fr. pianist and composer, b. in Glasgow, son of the preceding. He received the foundation of his musical education under Sullivan at the National Training School of Music (the predecessor of the Royal College of Music). Studied also under Ernst Paner, Stainer, and Prout. Won the Mendelssohn scholarship at seventeen, entitling him to a period of study abroad, which he spent at Vienna, afterwards studying under Liszt. As a pianist he soon became known in all parts of the world. Was for a short time court conductor in Weimar. He wrote two piano concertos, a symphony, and piano pieces. Married seven times, among his wives being Teresa Carreño, the pianist (1892–95), and the singer Hermine Fink (1895–1910). He also composed many songs, but is better known for his operas: *The Ruby* (1893); *Hismond* (1895); *Gernot* (1897); *Die Abreise*, or *The Departure*—a one-act comedy (1898); *The Improviser* (1900); *Tiefand*, his most successful work, and part of the stock repertory of most Ger. theatres (1903); *Flauto Solo*, musical comedy (1905); *Tragödien* (1907); *Love's*

Chains (1912); *Dead Eyes* (1916); *The Bull of Oliveira* (1918); *Scirocco* (1921); and *Maretke von Nymwegen* (1923).

Dale, David (1739-1806), Scottish philanthropist and founder of the 'Old Independents,' was in early life a Lanarkshire weaver. Engaging in the importation of Fr. yarn, he gained enough to estab. cotton mills at New Lanark, and also the first Turkey-red dye works in Scotland. A kind employer, he was also deeply interested in charitable and educational work. His son-in-law was Robert Owen (q.v.).

Dale, Robert William (1829-1895), Eng. theologian and Congregational minister, b. London. Educated Spring Hill College, Birmingham—then the chief training ground for the Congregational ministry—and at London Univ., where he took the gold medal for philosophy and political economy. Took part in the political life of Birmingham as a Liberal until the introduction of Home Rule by Gladstone, when he gave up politics. Took an important part in educational affairs, becoming manager of the National Education League and a leading member of the Central Nonconformist Committee. President of the Congregational Union, 1868-1869—an honour for so young a man. In 1877 he accepted the post of Lyman Beecher Lectureship at Yale. Made honorary LL.D. of Glasgow Univ. in 1878. He was a prolific writer, his most important works being *The Atonement*, 1875, a work which gave him a high place among theological writers, and was in its time a text-book in many colleges; *The Jewish Temple and the Christian Church*; *Lectures in Preaching*; *A Manual of Congregational Principles*; and *Discourses on Christian Doctrine* (the most finished and powerful of his works). See life by A. W. V. Dale, third ed., 1899.

Dale, coast vil. of Wales, situated on Milford Haven, in the co. of Pembrokeshire, 7 m. W. of Milford. It is noted in hist. as the place where Henry VII. landed with his Fr. followers on his way to Bosworth. Pop. 300.

Dalecarlia, see DALARNE.

D'Alembert, Jean le Rond, see ALEMBERT.

Dalgarno, George (1626-87), inventor of a deaf and dumb alphabet, b. at Aberdeen, and was a schoolmaster in Guernsey and at Oxford. His *Ars Signorum* (1661) contained ingenious suggestions for a universal language, based on the hypothesis that ideas could be expressed by universal characters. His *Didascalophus*, or *The Deaf and Dumb Man's Tutor*, appeared in 1680.

Dalhousie: 1. mt. sanatorium, 7687 ft. above sea-level, in the Dhauladhar range, N.E. Punjab, close to Kashmir frontier. Pop. 7000. 2. Famous univ. in Halifax Nova Scotia. Has over 800 students in attendance at its regular sessions.

Dalhousie, Sir James Andrew Broun Ramsay, first Marquess and tenth Earl of (1812-60), governor-general of India; entered the House of Commons in 1837, and in the following year, on the death of his father, took his seat in the Upper House.

His powers of debate soon won him office, and at the early age of thirty-one Peel appointed him vice-president of the Board of Trade, and, two years later, in succession to Gladstone, president. In 1847 he went to India as governor-general. Not long after his arrival the second Sikh war broke out, and in 1849 the Punjab was annexed. While the arrangement for the future administration of the new prov. occupied much of his time, D. yet found leisure to introduce many internal reforms in India. Careful to interfere as little as possible with the religious and caste system, yet there were certain abuses that he could not but remove. Notably he legitimated the remarriage of Hindu widows, and used all the means in his power to prevent the old practice of suttee. It is to D. that India owes the introduction of the telegraph and the railway; the railways, according to the principle he had when at the Board of Trade, desired to apply to the Eng. lines, were erected and controlled by the gov. It was during his viceroyalty that the second Burmese war occurred, and that Lower Burma was added to the Brit. Empire. He returned to England in 1856, his term of office having been extended beyond the usual limits. Dying without male issue he was succeeded by Fox Maule, Lord Panmure. See life by Sir W. Lee-Warner, 1904.

Dallin, Olof von (1708-83), Swedish poet, son of the pastor of Vinberg. Entering a gov. office at Stockholm in 1726 he rose rapidly. Being fond of Eng. literature he started (1733) the *Svenska Argus*, on the model of Addison's *Spectator*, and also wrote some satires in imitation of Swift. An historical epic, *Svenska Frihelen* (1742), and a hist. of Sweden (1747-61) procured him the post of tutor to the crown prince, but becoming entangled in Queen Louise's political intrigues, he was disgraced and banished from the court (1756), and though recalled five years later his health and spirits were entirely broken.

Dalkeith, mkt. tn. 4½ m. S.E. of Edinburgh, picturesquely situated on a tongue of land between the N. and S. Esk. It has an important grain market, while iron moulding, carpet weaving, brush making, and brewing are among the industries carried on. Extensive coalfields are in the vicinity. D. Palace (rebuilt in 1700) is a seat of the duke of Buccleuch. Pop. 7500.

Dalkey, fashionable seaside resort in Co. Dublin, Ire., with a fishing vil. Pop. of urban dist. 3500.

Dallapiccola, Luigi (b. 1904), It. composer, b. at Pisis, Istria; studied at the Conservatoire of Florence. First attracted international attention at pre-1939 festivals of the International Society for Contemporary Music, a number of his works being performed in Britain in B.B.C. contemporary music concerts. His *Songs of Captivity* were prompted by the Fascist 'racial laws' of 1938 and represent the expression in music of an imprisonment which was as much mental as physical. They consist of settings of the

prayer of Mary Queen of Scots, and of passages from Boethius' *De Consolatione Philosophiae* and Savonarola's *Meditation on the Psalm 'In te Domine speravi'*; the last two being performed in London in 1946. His symphonic suite, the ballet *Marsya*, written about the same time, is on the classical legend of Marsya's contest with Apollo. His *Piccolo Concerto* for piano and orchestra of twenty-six players show his desire to get the maximum possible variety of rhythm, colour, and contrapuntal interest within limited resources. For most of his subsequent work he adopted Schönberg's twelve-note technique. The first of these (1942) were three sets of lyrics for soprano and various combinations of instruments to words from the Greek anthology—*Cinque Frammenti di Saffo*, *Sex Catmivo Alcei*, and *Due Liriche d'Anacreonte*. Three recent works are two Studies for violin and piano; *Rencesvals*, a dramatic setting for baritone and piano of fragments from the *Chanson de Roland*; and an opera, *La Torture de L'Espérance* (on the famous short story by Villiers de l'Isle Adam). D.'s influence and that of his followers is growing daily in Italy, and is a very important factor in the cultural renaissance of that country.

Dallas, Alexander James (1759–1817), Amer. statesman and financier, b. in Jamaica, W. Indies, educated at Edinburgh; studied law at the Inner Temple; practised in Jamaica, and in 1783, having taken oath of allegiance to the U.S.A., in Philadelphia. He held sev. important positions in the commonwealth of Pennsylvania, and in 1814 Madison made him secretary of the Treasury; D. also served for some months as secretary of war, and during that time reorganised the army on a peace footing. He found the gov. bankrupt, and left it with a surplus of more than \$20,000,000. Among his writings are *The Laws of Pennsylvania, 1700–1801* (1801), and *An Exposition of the Causes and Character of the War of 1812–1815* (1815). See G. M. Dallas, *Life and Writings of Alexandra James Dallas*, 1871.

Dallas, George Miffin (1792–1864), Amer. diplomatist and politician, b. in Philadelphia. He graduated at Princeton College, 1810, and was admitted to the Bar, 1813; represented Pennsylvania in the Senate, 1831–33; attorney-general of Pennsylvania, 1835. In 1837 he entered the diplomatic service, and acted as Amer. ambas. in St. Petersburg for two years. He was elected vice-president of the U.S.A., 1844–49; ambas. to Great Britain, 1856–61. He wrote *Series of Letters from London* (1869), and a life of his father, A. J. Dallas (1871).

Dallas, leading manufacturing city of Texas, U.S.A.; with a pop. of 294,700 originated in 1841 with one log hut. Nearly half the cotton gins used in the world are made at D. There are large oil-fields, petroleum refineries, the largest inland cotton market, a municipal air port, fifty parks, and the S. Methodist Univ. with 3000 students. The fair held here is the largest ann. fair in U.S.A.

There are Rom. Catholic and Protestant cathedrals.

Dallin, Cyrus Edwin (1861–1944), Amer. sculptor; b. at Springville, Utah, where he became familiar with Red Indian life. Studied at Boston and Paris. Among his statues are 'Signal for Peace' (gold medal, Chicago, 1893), 'The Medicine Man' (Fairmount Park, Philadelphia), 'Sir Isaac Newton' (Congressional Library), 'Don Quixote' (gold medal, St. Louis, 1904).

Dallinger, William Henry (1841–1909), Eng. scientist, b. at Devonport. Author of *Minute Forms of Life* (1866); *The Creator and what we may know of the Methods of Creation* (1887); and editor of Dr. Carpenter's *Microscope and its Revelations*, 1901.

Dallmeyer, Johann Hein (1830–83), Ger. optician, b. at Loxten, Westphalia; came to London in 1851, and entered the employment of Ross, a telescope manufacturer, inheriting a large part of his business in 1859. He also took up the manuf. of photographic lenses with great success.

Dalmatia, coastal region of Yugoslavia, lying along the E. side of the Adriatic from Istria to the lake of Scutari. It is bounded on the E. by Bosnia and Herzegovina, and Montenegro, and by Croatia on the N. It is at no part more than 50 m. in breadth, but has a length of 350 m. The inhab. are mainly of Serbo-Croatian origin, being descendants of the Dinaric emigrants resulting from the fourteenth-century Turkish conquest of the Balkans, but many Its. are to be found along the coast. They are for the most part engaged in seafaring occupations, and in stock rearing and fruit growing. In the time of the Rom. Empire, with addition of D. and Pannonia to that empire, a main road was constructed to link each of these provs. to the focal point at Aquileia. Military and commercial considerations motivated the lay-out of this road system, which, apart from roads of secondary importance, was dominated by the 'Frank' lines, *Via Posthumia* and *Via Gemina*. It was intended to join D. and Pannonia to Italy and it fulfilled that intention. The products include wine and olives. The religion of the people is almost entirely Rom. Catholic. The coast is much indented, peninsulas and is. alternating with gulfs and bays. The is. include Brao (Brazza), Hvar (Lesina), Vis (Lissa), Korcula (Curzola), Mljet (Melada), and Lagosta. The country is largely mountainous, and includes the Dinaric Alps and the Karst plateaux. The prin. rivs. are the Zrmanja, Cetina, Kerka, and Neretva. Dubrovnik (g.v.) or Ragusa, in S. D., is rich in architecture, and is a noted tourist centre. D. was in former times a part of Illyria. In the early centuries of the Christian era it was overrun by the Goths and the Avars, and also by the Slavs. In the Middle Ages it fluctuated between the dominance of Venice and Hungary. It was ceded to Austria in 1797, to France in 1805, and again in Austria in 1814, and after the First World War was by the treaty of

Rapallo united to Yugoslavia, except the tn. of Zara which went to Italy. It may be pointed out that D. had been promised to Italy by the treaty of London, probably because it was not linked by a single railway line to the Yugoslav interior, and because Yugoslavia was not in a position to instal the post and rail facilities which would make D. a Mediterranean outlet for its overseas trade. In the Second World War, the outcome of the 'joint delimitation' following the Axis recognition of Croatia was that Germany annexed parts of Carinthia and Styria, while Italy

and powerful; eyes set fairly wide apart, bright and intelligent, black or dark brown in the black-spotted variety, yellow or bright brown in the liver-spotted variety; ears thin, well spotted, and rather small, carried close to the head; nose black or dark brown, according to its other markings; forelegs perfectly straight; hind legs with hocks well let down; feet round and cat-like; tail well spotted, long and tapering, carried with an upward curve; coat short, thick, and glossy. The average weight of a dog is 55 lb., of a bitch 50 lb. (See illustration on p. 506.)



BUDVA, IN SOUTHERN DALMATIA

Yugoslav Embassy

acquired the larger part of D. and Slovenia. But after the Second World War D., including Zara and Lagosta, reverted to Yugoslavia. See F. H. Jackson, *Shores of the Adriatic*, 1908; and P. Digoivi, *La Dalmatie et les problèmes de l'Adriatique*, 1944. Pop. 902,000.

Dalmatian Dog, spotted carriage dog, originally kept in stables. It is active and muscular, a good runner, and a fine watch dog. Its colour should be pure white, with round black or liver-coloured spots bold and evenly distributed over its body. The average size of the spots is that of a shilling, but they vary from the size of a sixpence to the size of a florin. The puppy is b. white, and it is some days before the spots appear. The spots on the head, tail, and limbs are smaller than those on the rest of the body. Its other points are: Head long, with a flat skull, and quite free from wrinkles; muzzle long

Dalmatic, eccles. vestment worn in the W. Church by deacons and bishops at mass, and also at solemn processions and benediction except in the penitential season. It is marked with two vertical stripes from the shoulder to the foot of the garment, which is slit beneath both sleeves. At a deacon's ordination the bishop prays 'may He [the Lord] cover thee with the dalmatic of righteousness for ever.'

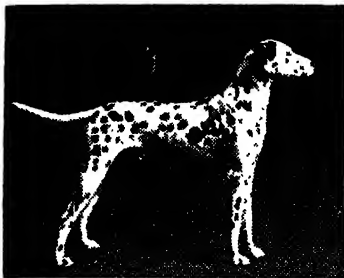
Dalman, city of India, in the prov. of Oudh, situated on the Ganges, 60 m. N.W. of Allahabad, and 50 m. S.E. of Cawnpur. Pop. 6000.

Dalmellington, par. and vil. of Ayrshire, Scotland, 15 m. S.E. of Ayr. Coal and iron have been worked from the eleventh century, and there are limestone and sandstone quarries. Pop. of par. 6000, vil. 1700.

Dalmeny, vil. and par. of W. Lothian,

Scotland, 1 m. S.E. of S. Queensferry. Near are D. Park, the seat of the earl of Rosebery, and Barnbougle Castle. Pop. (with Queensferry) 4500.

Dalny, *see* DAIREN.



T. Fall

DALMATIAN DOG

Dalou, Jules (1838-1902), Fr. sculptor, b. in Paris. He studied under Carpeaux and Duret. He had held office under the com. in the Louvre, 1871, and was obliged to flee to London, where he was given a professorship in the S. Kensington Museum, 1878; he returned to France in 1879. He always remained a disciple of Carpeaux, but his style is purer and his conception more vigorous. His chief works are 'Mirabeau delivering his famous Address in the States-General, 1789,' in relief, which was placed in the Chamber of Deputies; 'The Triumph of Silenus' (1897), in the Luxembourg, Paris; 'Bacchus consoling Ariadne' (1892); 'The Triumph of the Republic' (1900), in the Place de la Nation. He also executed busts of many of his contemporaries.

Dalriada: 1. The anct. name of the N. dist. of co.-Antrim, Ireland, now known as the Route. The Dalriada were, by tradition, descendants of Riada of the Long Wrist, chief of the Gaelic Scots. 2. The anct. name of part of Argyllshire, founded by the Dalriads of Ireland about 498. They were defeated at Magh Rath, co. Down, in 637, but in 843 united with the Picts, under Kenneth MacAlpin, and formed the kingdom of the Scots of Alban.

Dalruadhain, *see* CAMPBELTOWN.

Dalry: 1. Tn. of Ayrshire, Scotland, 19 m. S.W. of Glasgow, on the r. b. of the R. Garnock. The iron works were estab. in 1845. The tn. has also tweed and hosiery mills, and collieries. Pop. 5000. 2. Vil. of Kirkcudbrightshire, Scotland, 4 m. N.W. of New Galloway. Pop. 600.

Dalrymple, Sir David, Lord Hailes (1726-92), Scottish judge and historical antiquary, the great-grandson of the first Viscount Stair. He was called to the Scottish Bar in 1748, becoming judge of the Court of Session as Lord Hailes in 1766. He served with ability, if not with distinction, but he is chiefly remembered for his literary work, his friendships, and his controversies. He thought Hume's *Inquiry* atheistic, and refused to revise it

in 1753 on that ground. He was much esteemed by Dr. Johnson, who, nevertheless, adjudged him below Goldsmith as an historian, and who revised his chief work, *Annals of Scotland* (1776).

Dalrymple, Sir James, first Viscount Stair (1619-95), Scottish lawyer and politician. He was prof. of philosophy at Glasgow from 1641 to 1647, when he was admitted an advocate in Edinburgh. He was appointed secretary to the commissioners sent to Charles II. by the Scottish Parliament, 1650; lord president of the court of session, 1671. He wrote *Institutions of the Law of Scotland* (1681, 1693); and a Lat. work, *Physiologia Nova Experimentalis* (1686). He was created Viscount Stair in 1690. *See* J. M. Graham, *Annals and Correspondence of the Viscount and First and Second Earls of Stair*, 1875.

Dalrymple, Sir John, second Earl of Stair (1673-1747), Scottish general and diplomatist. He was educated at the univs. of Leyden and Edinburgh, and in 1701 joined a Scottish foot regiment and served in Marlborough's campaigns. He succeeded to the earldom in 1707, and was made commander-in-chief of the forces of Scotland. He served with high distinction at Oudenarde, Malplaquet, and Ramillies. He acted as Brit. ambas. in France, 1708, and in Holland, 1742, and in 1743 fought at the battle of Dettingen. At his seat in New Liston, Edinburgh, he devoted much time to agriculture, and was the first to plant turnips and cabbages in open fields.

Dalsersf, par. and vil. of Mid-Lanark, Scotland. It stands on the Clyde, 2½ m. from Wishaw, and 7 m. S.E. of Hamilton. A Rom. road to Ayr passed through the par., and there are Caledonian forts. Coal and iron are extensively worked, and there are orchards and dairy farms. Pop. 20,000.

Dalswinton, estate and vil. of Dumfries, Scotland. It is noted as being the place where was launched the first steamboat in Great Britain, by Patrick Miller, upon a small loch, in 1788.

Dalton, John (1766-1844), one of the greatest of Eng. chemists, b. at Eaglesfield, in Cumberland. His father was a weaver and Quaker. He himself kept a Quaker school for a time, and was afterwards partner in a school at Kendal. While at Kendal he commenced (1787) a journal of meteorological observations, the results of which appear in his *Meteorological Observations and Essays* (1793), and other works. In 1793 he became a teacher of mathematics and the physical sciences in the Manchester New College, and it was in the following year (1794) that he made known the results of his investigations of colour-blindness, sometimes called Daltonism, from which he and his brother suffered. In 1801 appeared his important essays, *The Constitution of Mixed Gases*, and *The Expansion of Gases by Heat*, and he followed up these researches by developing the atomic theory as an explanation of the facts of chemical combination in a paper read before the Manchester Philosophical

Society in 1803, *On the Absorption of Gases by Water and Other Liquids* (1805), and *A New System of Chemical Philosophy* (1808-10). He was elected president of the Manchester Philosophical Society in 1817, received the medal of the Royal Society in 1825 'for his development of the chemical theory of definite proportions,' and was made a foreign associate of the Paris Academy of Sciences in 1830. He was made D.C.L. of Oxford, and LL.D. of Edinburgh. See W. C. Henry, *Memoirs of John Dalton*, 1854; A. Harden and H. E. Roscoe, *A New View of the Origin of Dalton's Atomic Theory*, 1896; and lives by J. Neville-Palley, 1920, and W. A. Tilden (in *Famous Chemists*), 1921.



JOHN DALTON

Dalton, city of Whitfield co., Georgia, U.S.A., 114 m. N.W. of Atlanta. The surrounding country is rich in minerals, and D. has numerous foundries, mills, and factories. It is also a trade centre for exporting cotton, cattle, grain, and fruit. It was an important military centre during the Civil war. Pop. 10,400.

Dalton-in-Furness, par. and tn. of Lancashire, England, 5 m. from Ulverston. The ruins of Furness Abbey are in the neighbourhood. Iron ore abounds, and malting and brewing are carried on. Pop. 12,300.

Dalton Plan, experiment in educational reform initiated in 1920 at Dalton, Massachusetts, by Helen Parkhurst. It is similar in conception to the methods of Dr. Maria Montessori, striving to develop individuality by directing the child in self-chosen occupations and study. See Helen Parkhurst, *Education on the Dalton Plan*, 1922.

Dalton's Laws are two laws relating to the behaviour of gases. The first law is known as the law of partial pressure. It states that, in a mixture of gases, each gas exerts the same pressure as it would if it occupied the total volume; in other

words, the total pressure of the mixture is the sum of the partial pressures of each gas. D.'s second law, usually known simply as D.'s law, states that if a mixture of gases is placed in contact with water or any other solvent, then the amount of each gas dissolved and the solvent is directly proportional to the partial pressure of that gas. D.'s law is an extension of an earlier law stated by W. Henry, viz. that the amount of gas dissolved by a solvent is directly proportional to the pressure of the gas.

Daly, Sir Henry Dermot (1821-95), Brit. soldier, b. at Daly's Grove, co. Galway, Ireland. During the Indian mutiny he distinguished himself at Delhi, where he was twice wounded. At the capture of Lucknow he was in command of a regiment of Hodson's Horse, and on the death of Hodson took command of the three regiments in the Oudh campaign.

Daly, John Augustin (1838-99), Amer. theatrical manager and playwright, b. at Plymouth N., Carolina, U.S.A. He became dramatic critic to various New York papers—the *Sunday Courier*, *Express*, *Sun*, *Citizen*, etc.—from 1859 to 1869, when he opened a theatre, known as Fifth Avenue Theatre. This theatre was destroyed by fire, and in 1874 he opened another D.'s Fifth Avenue Theatre. D. had an excellent and most popular company, Miss Ada Rehan being for many years his leading lady. He toured in England and on the Continent with great success, and built D.'s Theatre (q.v.) in Leicester Square, London, in 1893. He was also a clever playwright, and wrote adaptations from Fr. and Ger. plays. His own plays include *Pique*, *The Great Unknown*, and *The Last Word*, and he was also the author of *Woffington: a Tribute to the Actress and the Woman* (1888).

Dalyell, or Dalzell, Thomas (c. 1599-1685), Scottish general, who fought on the Royalist side at Worcester (1651). During Cromwell's Commonwealth he enlisted in the Russian Army, and fought against the Turks and Tartars. On Charles II.'s accession he returned to Scotland, over which he was appointed commander-in-chief. He harshly repressed the Covenanters and defeated them at Rullion Green, in the Pentlands.

Daly's Theatre, theatre in Leicester Square, London, opened by J. A. Daly (q.v.) and his New York company with *The Taming of the Shrew* on June 27, 1893. The theatre was visited by Sarah Bernhardt in 1894, and again in 1895 in Sudermann's *Magda* and Rostand's *La Princesse lointaine*. From 1896 onwards it produced chiefly musical comedies, which included *The Geisha* (1896), *The Merry Widow* (1907), and *The Dollar Princess* (1909). It was demolished in 1934, and its site was occupied by a cinema.

Dalziel Brothers, firm of engravers, printers, and pubs., comprising George D. (1815-1902), Edward D. (1817-1905), John D. (1822-60), and Thomas Bolton D. (1823-1906), sons of Alexander D. of Northumberland, seven of whose sons became professional artists. The original partnership was constituted by George,

draughtsman and wood-engraver, and Edward, who, besides being an engraver, also painted in oils and water-colours, and who was responsible for extending the business to include publishing and printing. The authentic signature on the engravings of the D. B. is 'Dalziel sc.' only their earlier work being signed individually. Both Edward and Thomas were skilled book illustrators, particularly Thomas, whose best illustrations are to be found in early eds. of Wm. Cullen Bryant's poetical works, and Jean Ingelow's poems, and notably in the ed. of *Pilgrim's Progress* pub. by Ward, Lock in 1865, in D.'s *Arabian Nights* (1864) and D.'s *Bible Gallery* (1880). Woodcuts by George D., who developed his skill under Charles Bray, the engraver, were also executed for the above works. George, though a skilled engraver, had not the original talent of Thomas D., but he was a prolific engraver, producing alone or with his brothers numerous block engravings for many well-known pubs., such as the Abbotford ed. of Scott, Charles Knight's *Shakespeare*, and also for the periodicals *Punch* and the *Illustrated London News*, most of which blocks were made after drawings by contemporary artists of estab. reputation, such as Cruikshank, Doyle, and Leech. Later came engravings for the poems of D. G. Rossetti and of the paintings of Millais, Burne-Jones, and other Pre-Raphaelites; for Tennyson's poems (Moxon's ed.); Lear's *Book of Nonsense* (1862); and for *Alice in Wonderland* (1865) and *Through the Looking Glass* (1872)—in which latter connection it may be noted that Edward D. was a fellow student of Tenniel at a London school in early manhood. Other works for which the D. B. made well-known engravings were Staunton's *Shakespeare*, from illustrations by Sir John Gilbert; *Lalla Rookh* from illustrations by Tenniel; and Goldsmith's works, from illustrations by George John Pinwell. See C. and E. Dalziel, *The Brothers Dalziel: a Record of 1840-99*, 1901; F. Colebrook, *Dalziel and the Dalepries*, 1909.

Dalziel, par. of Scotland in N. Lanarkshire, situated on the Clyde, 12 m. S. of Glasgow. It includes part of Wishaw and Motherwell, and forms the chief centre of the Scottish Black Country. There are large iron and steel works, and the manu. of heavy iron goods is carried on. There are also sandstone quarries in the vicinity. Traces of the old Rom. Watling Street are to be found near by. Pop. 50,000.

Dam. Prin. types of Ds. are (i.) masonry or concrete; (ii.) rock-filled; (iii.) earth. (i.) The first type are the most popular for large reservoirs, and, owing to the advance in engineering knowledge during the past century, they are exceedingly stable and also built in the most economical way. They are generally triangular, in cross-section, and the width at any horizontal section of the D. is governed by the consideration of stability; this requires that the resultant of the two stresses or any portion of the D., viz. the weight of the masonry above the horizontal section and

the force due to the pressure of the water on the fraction of the D. below it under consideration, shall pass within the middle third of the horizontal section. These Ds. are made water-tight by concreting the water-face and the bottom of the D. (ii.) The second type is cheaper though inferior to the masonry D. It is concreted on its water-face and its outer face consists of masonry carefully built. The space between the two walls is filled with quarry rock of all sizes. In order to make the D. more water-tight the concrete wall is continued downwards until an impervious stratum is reached. (iii.) Earth Ds. are the cheapest Ds. if suitable material is available close at hand. They are rendered water-tight by a core of clay that is carried downward until an impervious stratum is reached. Damage to the earth D. that would be caused by the overflow of the water after heavy rains is avoided by building a concrete waterway through the D. See also RESERVOIRS. See W. F. Creager, J. Austin, and J. Hinds, *Engineering for Dams*, 1945.

Damages, in law, the pecuniary compensation recoverable for loss or injury by a person who has suffered a legal wrong at the hands of another. General D. are those regarded as naturally consequent on the breach of the right, and not requiring further proof. Special D. are D. for definite loss resulting from the act of the defendant; these must be specifically pleaded and proved. Nominal D. are given when the plaintiff proves a right but fails to prove actual loss. Substantial D. is the term used to represent fully the plaintiff's actual loss. Exemplary or vindictive D. are awarded to punish the offender, in addition to compensating the injured party, and may be given in actions for slander, libel, etc. Apart from cases of this character, the general rule is that the D. must be measured by the loss actually sustained, and that D. must be awarded on the principle that the injured party should be placed as nearly as possible in the position in which he would have been if the wrong had not been sustained. Another rule is that in a case where sev. persons are equally concerned in committing an injury, each is liable for the full amount. D. are recoverable for a breach of contract, a civil wrong, or a delict. Injury sustained through the want of ordinary skill on the part of a professional man is admissible as a cause of action.

Damage to Property, see MALICIOUS INJURIES TO PROPERTY.

Damaghan, see DAMOCHAN.

Daman, or **Damão**, Portuguese settlement on the W. coast of India, within the boundaries of the prov. of Gujarat, on the gulf of Cambay. In the dist. are the forests of Nagar Havall, which provide teak for shipbuilding. Tobacco is grown, there are fine fisheries outside the harbour, and there are large salt works. Daman was first occupied by the Portuguese in 1558, and was finally ceded by the Marathas in 1780. Area of the dist. 169 sq. m. Total pop. 68,000.

Damanhur, or **Damanhoor**, cap. of the

prov. of Beheira, Lower Egypt, on the Mahmudieh Canal, and on the railway line between Cairo and Alexandria. It has trade in cotton and woollen goods. Pop. 84,900.

Damaraland, ter. forming part of S.W. Africa. Ger. until after the First World War, when it was mandated to the Union of S. Africa, together with the rest of S.W. Africa. It extends inland from the Atlantic Ocean to the Kalahari desert, and lies between Namaqualand and Ovampoland. Part of the E. dist. is very mountainous; further inland lie well-watered prairies. The chief industry of the Damaras (or Herero), a nomadic tribe of Bantu stock, is cattle raising. Copper is found near Otavi, but the chief products of the country are leathers, skins, and ivory. Walvisch Bay is the only good harbour. The chief settlements are Windhoek, Omaruru, Ojimbingue, and Otavi. Pop. about 30,000. See also HERERO.

Damascening, or **Damaskening**, word referring to the watered lines on blades of weapons, and also to the gold and silver decorations that are incrustated on blades. The word is derived from Damascus, where the art originated and was discovered by Europeans at the time of the crusades. The watered pattern is produced by the process of forging, welding, and soldering rods of iron. The rods are twisted and then welded into one, leaving a fine watered or damascened surface. The gold and silver incrustations with which blades and hilts are ornamented are wrought in India and Persia. Gold or silver wire is laid on to a design which has previously been cut or scratched into the surface, and then the wire is hammered into position. Consult Col. T. Hendley, *Damascening on Iron and Steel, as practised in India*, 1892.

Damascenus, **Joannes**, known as **Chrysostomus** (the Golden-flowing). see **JOANNES DAMASCENUS**.

Damascenus, **Nicolaus**, philosopher and historian of the Augustan age and a friend of Herod the Great; the dates of his birth and death are unknown, and almost all our information of him is gathered from Josephus, Eusebius, and others who mention him. He wrote various works in Gk., philosophical and political in character, of which none are extant: an autobiography, of which portions have been preserved by Suidas and Josephus; and a universal hist. in 141 books, of which a few fragments remain. The best ed. of the extant portions of D. is that of J. C. Orelli (Leipzig), 1804.

Damascus, chief tn. of Syria, known among the natives as Kesh-Shām. According to Josephus, it was founded by Uz, the son of Aram and grandson of Shem. On three sides of the city rise the heights of Anti-Lebanon, whence comes the Barada R., spreading itself in seven branches over the great plain. Two of these branches are identified with the ant. Abana and Pharpar mentioned in the Bible. The plain of D., 500 sq. m. in area, is dotted with tns. and vils., and is extremely fertile. The city, with its wooded background, presents a picturesque spectacle,

for it has numerous mosques and other public buildings, many of which are of considerable interest. The Great Mosque, with its dome 120 ft. high, was originally erected in the beginning of the eighth century by the caliph Walid 'Abd-el-Melik. It took the place of a Christian church, which, in turn, had replaced a heathen temple three centuries earlier. The building has sev. times suffered from fire, notably at the hands of Tamerlane in 1401. 'The Great Mosque is immense; there is a great court, and portico of yellow marble, big as a piazza. The general effect from colours is lovely—the Imams' niches, doors, pulpit, worked in marble and mother-of-pearl, and old blue tiles outside under the columns; yet the general effect is absolutely simple' (Freya Stark, *Letters from Syria*, 1945). In the S.W. suburb of Meidan is the Gate of God, through which the hadj (*hajj*), the great pilgrimage to Mecca, sets out. The tomb of Nur ed-Din is among the relics of the city, while another place of interest is the 'street called Straight' (Acts ix. 11), which runs a mile through the city from E. to W. Here, too, is Saladin's tomb. Commercially, D. occupies an important position, being a great meeting-place for the caravans from Bagdad and the E. and the traders from the W. It is now the centre of sev. motor-routes, and air and rail communications have been developed. Electric light and other European amenities have also been introduced. The chief exports are grain, flour, inland wood, silken and cotton manufs., the apricot, and other fruits. Its industries include the production of metal work, mother-of-pearl inlaid work, gold and silver work, perfumes, attar of roses, carpets, etc. D. gives its name to damsons (Damascene plums). Pop. about 250,000, chiefly Moslems.

History.—The hist. of D. goes back to the days of Abraham. It was the scene of two great events in human destiny—the conversion of St. Paul, and, according to Moslem tradition, a great decisive moment in the life of M. Chomet, when he resolutely turned his back once for all on the pleasures of the world. D. belonged in turn to Assyria, Persia, and Rome, and from 661–750 was the cap. of the Caliphate. After being the centre of struggle between the Moslems and Tatars, D. became the cap. of Syria within the Ottoman Empire (1516). Turkish dominion continued until Oct. 1, 1918, when D. was occupied by the allied troops under Allenby and the Arab troops under the Emir Faisal. Faisal estab. an Arab national state and reigned for nearly two years. Meanwhile the Fr. had obtained the mandatory control of the Syrian seaboard with headquarters at Beirut, and friction between the Fr. and the Arabs led to the occupation of D. on July 25, 1920. Faisal fled to Bagdad. The problems confronting the Fr. administration of Syria were largely religious. The Fr. as traditional champions of the Maronite Christians of Lebanon came into conflict with the Moslems, and with the Druses, a religious sect inhabiting the mountainous

country of Jebel Druz. A Druse rebellion broke out, and the insurgents expected to find active support in D., eventually gaining an entrance into the city. D. was bombarded on Oct. 18, 1925, and about 25,000 houses were destroyed. Gen. Sarrail, the high commissioner, was recalled, but trouble continued, followed by a second bombardment of D. in May 1926. Later reconciliatory measures were introduced, and D. settled down to a period of material prosperity. D. was defended against the Allies in the Second World War, having fallen under the influence of Vichy. The operations by the

it was brought from the E. to Byzantium by the Crusaders, thence it passed to Italy, and thence to France and Flanders.

Damaskinos (Damaskinos Papandreou) (b. 1891), Gk. prelate and statesman, b. at Dorvoutsia. Bishop of Corinth, 1918. Archbishop of Athens, 1937. He became clerical leader of the Gk. resistance movement in the Second World War against Its. and Gers. Appointed regent in the absence of the king, 1944.

Damasus I., pope (366-84), was b. in Portugal about 304. He was elected pope by a large majority, but the minority resorted to violence and bloodshed in order



DAMASCUS

E.N.A.

combined Brit. and Free Fr. troops proceeded in somewhat leisurely manner, owing to the feeling that many of the garrison were de Gaulist in sentiment. D. was taken on June 21, 1941. See SYRIA.

Damask, name given to certain types of fabric with ornamental patterns. The term originated with the rich figured silks of Damascus, and was formerly applied to silk fabrics only; now the name is used also for woollen, linen, and cotton stuffs with floral or other patterns woven in the loom. Ds. are now chiefly used for tablecloths, curtains, and upholstery coverings. Table linen Ds. are manufactured at Belfast, Dunfermline, and Barnsley; cotton Ds. at Glasgow, Paisley, and in Lancashire; woollen Ds. around Bradford and Halifax; and silk Ds. near London. The industry was introduced into England in the sixteenth century by the Flemish weavers, who fled from the persecutions of the duke of Alva. Originally

to place Ursinus in the papal chair. The Emperor Valentinian I. decided in favour of D. D. defended the faith vigorously against various heresies, was instrumental in bringing about Jerome's Vulgate version of the Bible, and did much for the preservation of the catacombs.

Damasus II., elected pope on July 17, 1048, but succumbed to malaria twenty-three days later.

Dambrowa, tn. of Poland in the prov. of Kielce. It is the centre of a coal basin of some 80 sq. m. in area, which, combined with those of Cracow and Polish Silesia, form one of the largest coalfields of Europe. Output of the D. basin has reached 6,500,000 tons in a year. Pop. 40,000.

Dambul, or **Dambula**, vill. of Ceylon, situated about 40 m. N. of Kandy. It is famous for its cave temples.

Dam-Dam, see DUM-DUM.

Dames of the Order of the British Empire are either Dames Grand Cross (G.C.V.O.)

or G.B.E.) or Dames Commander (D.C.V.O. or D.B.E.), the feminine counterparts of Knights Grand Cross and Knights Commander. The orders were first given on June 4, 1917, as a reward for various war services, but later they have been conferred for important services rendered to the empire in various capacities. In 1946 there were thirty-five Dames Grand Cross and ninety-one Dames Commanders. Dames are addressed in a manner similar to that of knights, e.g. Miss A—— B——, after receiving the honour, would be addressed as Dame A., and in writing as Dame A—— B——. G. (or D.) C.V.O., or G. (or D.) B.E. Dames Grand Cross rank after wives of baronets and before wives of Knights Grand Cross. Dames Commanders rank after the wives of Knights Grand Cross and before the wives of Knights Commanders. A complete list of holders of these orders is given in Burke's *Peerage*, and a full account of the order in Debrett's *Peerage*.

Dame's Violet, or *Hesperis matronalis*, species of *Cruciferae*, found in Europe and Asia; the flowers are pale lilac in colour and have no scent until the evening. In Britain the double variety is grown in gardens as a hardy perennial.

Damghan, or **Damaghan**, vil. of Persia, in the prov. of Semnan va Damghan, 45 m. S. of Astrabad. In the vicinity are the ruins of the Parthian cap. Hekatompylos. It was of great importance in the time of Shah Abbas. Almonds and pistachios are exported. Pop. 10,000.

Damian, see COSMAS AND DAMIAN.

Damiani, Pietro, Saint (1007-72), It. ecclesiastic. In 1035 entered the hermitage of Fonte Avellano, near Gubbio, a severe and ascetic establishment, of which he became head in 1043. He soon went into political life, entering upon a correspondence with the Emperor Henry III., and in 1049 writing to Pope Leo IX., *Liber Gomorrhianus*, in which he denounced the vices of the clergy. In 1058 he became a cardinal and bishop of Ostia, and gained a signal victory for papal authority at the Council of Milan in 1059. His collected works, which are mainly directed against simony and the marriage of the clergy, appeared in 4 vols. at Rome, under the editorship of Cardinal Gaetano, in 1606-1615.

Damien, **Father** (properly **Joseph de Veuster**) (1840-89), Belgian missionary, b. near Louvain. Educated for a business career, but as a youth entered the Church, joining the Pelpus Congregation, a Fr. religious order having missions in the Pacific, and was ordained priest at Honolulu in 1864. In 1873, struck with the pitiful condition of the 600 lepers at Molokai Is.—whither the Hawaiian Gov. transported their lepers—D. volunteered to assume spiritual charge of the settlement at Molokai Is. For sev. years he worked alone, though later other resident priests assisted him for a time. In 1885 he himself contracted the disease, of which he ultimately d., though he continued with his work until his death. Some ill-conceived imputations on him by

a Presbyterian clergyman evoked a fine eulogy from R. L. Stevenson in an *Open Letter to the Rev. Dr. Hyde* (Sydney, 1889). In 1932 it was decided to beatify him. See lives by E. Clifford, 1889; F. E. Cook, 1889; Father Pamphile, 1889; and *The Lepers of Molokai*, by C. W. Stoddard, 1885.

Damiens, Robert François (1714-57), Frenchman who attempted to assassinate Louis XV. He was b. near Arras, and began life as a soldier, and later became a menial servant in Paris. On Jan. 5, 1757, as Louis was stepping into his carriage to leave Trianon, D. stabbed him with a knife. He was caught and a horrible sentence passed on him by the Parliament three months later. His hand was burnt slowly, and he was tortured by having his flesh torn off with red-hot pincers, melted oil, lead, and resin being afterwards poured into the open wounds. His body was then torn to pieces by four horses. It was alleged that the Jesuits had instigated him to perform the crime, but D. himself asserted that he had been aroused by the king's conduct towards Parliament.

Damietta, tn. and port of Lower Egypt, on the chief E. branch of the Nile, lying between the r. b. of the riv. and Lake Menzaleh. It is about 10 m. from the sea, but has been superseded as a port by Port Said and Alexandria. It still contains busy bazaars, has a considerable export trade in rice, and manufs. cotton, silk, and pottery. The old tn. was fortified by the Saracens, but was sev. times taken by the crusaders. Louis IX. captured the tn. in 1249. When it was restored to the Saracens in 1250 they razed it to the ground, and it was rebuilt on its present site. Pop. 53,600.

Damiri, **Kemal Ed-din Mohammed Ibn Musa** (1349-1405), Arabian jurist and naturalist. Spent his life in Egypt, being prof. of tradition at the Rukniyya in Cairo and at the Muslim univ. of El Azhar. Belonging to the Shafite school of law, he wrote a commentary on Nawawi's *Minhaj ul-Tatibin*, but is chiefly remembered for his literary and digressive *Hayat ul-Hayawanin* (Life of Animals).

Dammar, name given to four species of *Agathis* or *Dammara*, coniferous trees from which much res. is obtained. The *A. australis*, or Kauri pine, produces very hard wood used for paving and masts, and is found in New Zealand and Australia. *A. Dammara* produces resin and gums which are used as pitch and tar on ships and also in varnish; it has many other chemical derivatives. It is aromatic and is used in the E. as incense.

Damme, formerly the port of Bruges, but now merely a vil., in Belgium, situated in the prov. of W. Flanders, 5 m. from Bruges. It once ranked among the important European ports, the Zwyn communicating with the North Sea. The channel silted up, and the port was closed, Antwerp, on the Scheldt, taking its place. Pop. 1,200.

Damnonii, **Dumnonii**, or **Damni**: 1. Anct. Brit. tribe inhabiting the W. peninsula (modern Devon and Cornwall),

and having Isca Dumnuniorum (modern Exeter) as their cap. 2. Anct. tribe of Perthshire, inhabiting Monteth, Strathearn, and Fotherif (i.e. the W. part of Fife and Kinross), and having Alanna (Allan), Lindum (Ardoch), and Victoria (Lochore or Perth) as their chief tns.

Damnum absque Injuria (Lat., damage without wrong) denotes damage done to a person for which the law provides no remedy. The correlative legal maxim is *ubi jus ibi remedium*, i.e. where there is a right there is a remedy. In the exercise of one's ordinary rights much inconvenience and damage must often be caused to other persons without thereby incurring liability, e.g. opening a shop in competition with a neighbour in the absence of express agreement to the contrary may result in damage, but such damage would be D. a. I. Again, the interception or draining off on his own land by a landowner of water collected from underground springs in a neighbour's well would also be D. a. I.; and generally the principle applies in a number of cases where a man uses his own property to the prejudice of his neighbour.

Damocles, favourite of the elder Dionysius, tyrant of Syracuse. The story of how Dionysius, in order to illustrate what kind of happiness wealth and birth brought to princes, placed his sycophant at a luxuriously spread table over which hung a naked sword by a single horse-hair, is told by Cicero and referred to in Horace's *Odes*.

Damodar, riv. of W. Bengal, India, with a length of 350 m. It joins the Hugli close to Calcutta, the chief trib. being the Barakhar. The most important coalfield of India lies in the valley of this riv.

Damoh, tn. of India, and the cap. of the Damoh dist. in the Central Provinces. There are manufs. of pottery, and also dyeworks and a cattle market. Pop. 20,000.

Damon: 1. A Pythagorean of Syracuse, whose name is always associated with that of Pythias, properly Phintias. The latter was condemned to death for plotting against Dionysius, tyrant of Syracuse, but was allowed to go and settle his domestic affairs while D. remained, pledging his own life for the return of his friend. Phintias came back just in time to redeem D., and Dionysius was so much impressed by their love for each other that he pardoned Phintias. Their love for each other has become proverbial. 2. An Athenian musician and sophist, a teacher and close friend of Pericles. He was banished from Athens about 430 B.C.

Dampier, William (1652-1715), Eng. mariner and adventurer, b. at E. Coker, Somersetshire. He went to sea at an early age, and after voyaging to Newfoundland, Jamaica, and other places, he took part in buccaneering expeditions in Central and S. America. He was marooned on the Nicobar Is. in 1683, but managed to reach Achin (Atcheen), and returned to England in 1691. In 1699 he was sent by the Admiralty to explore around Australia and New Guinea, and he

gave his name to the D. Strait and Archipelago. On his way back he was wrecked on Ascension Is., but was rescued two months later. After an unfortunate expedition to the South Seas in 1703-7 he made his last voyage as pilot to Woodes Rogers (1708-11) in a privateering expedition. D. was associated with Alexander Selkirk (immortalised as Robinson Crusoe), who was rescued on his last voyage. *A New Voyage round the World* (1697) was D.'s chief work. D. was a very skilled navigator, and his book gives much valuable information told in the perspicuous style of the born travel writer; but it tells us very little of his doings among the Ilonguranian buccaneers. We know, however, that he must have taken part in many fights, particularly in the bay of Campeachy, and at Santa Maria and other places on the isthmus of Panama and on the Peruvian coast. He was, however, chiefly concerned, as is shown in his famous *Discourse of Winds* (1699), with natural hist., hydrography, weather, and all the phenomena one would come upon as an ocean traveller; the mere incidents of a buccaneering life did not interest him, he followed the calling chiefly as a means of acquiring navigational experience, and there seems but little doubt that his great skill as a sailor inspired fear among the Spaniards. His *New Voyage, Voyages and Descriptions* (1699), and *Voyage to New Holland* (1703, 1709), all appear in John Masefield's ed. of the *Voyages* (2 vols., 1906).

Dampier, name of certain places in the E. Indies and Australia, which have been called after Wm. Dampier (q.v.): 1. Archipelago off the N.W. coast of Australia, comprising Rosemary (12 m. from the mainland), Lewis, Depuch, Legendre, Enderby, and sev. small rocky is. 2. Is. off the N.E. coast of Papua; is volcanic. 3. Dampier's Land, a peninsula of Australia, lying between the Indian Ocean and King Sound. 4. Strait between the is. of Papua and Waigia, 70 m. long and 35 m. broad. It affords the safest passage between the Indian and Pacific oceans. 5. Strait which separates the E. coast of Papua from the archipelago of New Britain.

Dampremy, tn. of Belgium, in the prov. of Hainaut, 1 m. from Charleroi. Coal is extensively worked. Pop. 13,500.

Damrosch, Leopold (1832-86), Ger.-Amer. violinist and composer, b. in Posen, Prussia. In 1871 he went to New York, where he founded the Oratorio Society (1873), the Symphony Society (1877). He organised a season of Ger. opera, 1884-1885. He wrote sev. cantatas and pieces for the violin.

Damrosch, Walter Johannes (b. 1862) Amer. musician; b. at Breslau, Silesia; son of Leopold D., whom he succeeded as musical director of the Oratorio and Symphony Societies. Founded D. Opera Company, 1895. Since 1903 devoted himself to New York Symphony Orchestra. Founded school for military bandmasters during the First World War. Composed four operas: *The Scarlet Letter*, *Cyrano* (text by Wm. J. Henderson); performed

Metropolitan Opera House, 1913); a comic opera, *The Dove of Peace* (1912); and *The Man without a Country* (text by Guiterman) (Metropolitan Opera House, 1937); a *Mantia Te Deum* (1898); and incidental music to Euripides' *Medea* and *Iphigenia in Aulis* (1915), and to Sophocles' *Electra* (1916). Pub. *My Musical Life* (1923).

Damsel-fly, see under DRAGON-FLY.

Damson (a corruption of damascene), or *Prunus Mahaleb*, variety of *P. domestica*, the plum, which is a member of the order Rosaceae. The plant is hardy, propagating largely by suckers, the bark is fragrant, and the fruit is late and abundant. The Damascene plum, as it is often called, is eaten raw, stewed, and preserved. A species of Sinarubaceae, the *Sinaruba amara*, a native of the W. Indies, is known as the mountain or bitter damson.

Dan: 1. Israelite tribe descended from its eponymous ancestor, D., the son of Jacob and Bilhah. The tribe settled in the valleys of Sorek and Ajalon, but spread northwards to Lush, which it rebuilt as D. (see Gen. xiv. 14, xxx. 5, 6; Judges i., xviii., etc.). 2. The most N. limit of the land of Israel (cf. the phrase 'from Dan to Beersheba'), near the source of the Jordan. The site is identified with the hill Tel-el-Kadi, 3 m. W. of Banías. 3. Trib. of the R. Roanoke, N. Carolina and Virginia, U.S.A.

Dana, Charles Anderson (1819-97), one of the most famous of Amer. editors, b. Hinsdale, New Hampshire, U.S.A., Aug. 8, 1819. Studied at Harvard Univ. and then entered journalism, serving on the *New York Tribune* in 1847. In 1849 he became its managing editor, and held that position until 1863, taking a strong line against slavery. On his resignation, Secretary of War Stanton employed him on various important missions and made him an assistant secretary in 1864. In 1868 he became editor and part owner of the *New York Sun*. Of queer and fiery temperament, D. was savagely independent. He opposed the impeachment of President Johnson, he favoured Gen. Grant's election in 1868 and opposed him in 1873. He opposed Cleveland for the presidency in 1884 and supported him in 1888.

Dana, James Dwight (1813-95), celebrated Amer. naturalist, mineralogist, and geologist, b. at Utica, New York; graduated at Yale, 1833. D. went as scientific observer on the U.S.A. exploring expedition under Wilkes (1838-42), visiting the Antarctic and Pacific. With his father-in-law, Silliman, he ed. *American Journal of Science* (1840), and in 1850, on the resignation of Silliman, he was appointed Silliman prof. of natural hist. and geology at Yale. Among his works are *System of Mineralogy* (one of the most important books written on the subject, 1837); *On Zoophytes* (1846); *Manual of Mineralogy* (1848); *Reports on the Geology of the Pacific* (1849); *On Crustacea* (1852-1854); *Textbook of Geology* (1864); *Coral and the Coral Islands* (1873); and *Hawaiian Volcanoes* (1890). See life by D. Gilman, 1899.

Dana, Richard Henry (1787-1879), Amer. poet and essayist; educated at Harvard, b. at Cambridge, Massachusetts. His *Dying Raven* appeared in 1821; *The Buccaneer* in 1827, in a vol. of poems pub. that year. An ed. of his works was pub. in 1833, containing pieces which originally appeared in *The Idle Man*, a paper which he conducted for a time. His collected works were pub. in 1850, including *Thoughts on the Soul* (1829), and the novels *Paul Felton* and *Tom Thornton*, both somewhat violent and improbable tales. He was perhaps at his best as a critic, but his own works did much to elevate the literary taste of New England. See R. F. Griswold, *The Poets and Poetry of America* (1842), and *The Prose Writers of America* (1847).

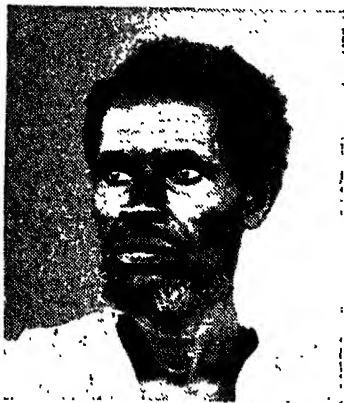
Dana, Richard Henry (1815-82), Amer. author, lawyer, and politician, son of the poet. Educated at Harvard. He was especially distinguished in maritime law, but on his eyesight giving way shipped as a common sailor, and gave his experiences in his sea classic, *Two Years before the Mast* (1840). Other works were *The Seaman's Friend* (1841); *Vacation Voyage to Cuba* (1859); and an ed. of Wheaton's *Elements of International Law* (1866). See C. F. Adams, *R. H. Dana: a Biography*, 1890.

Danaë (Δανάη), in Gk. mythology, daughter of Acrisius, king of Argos, great-grandson of Danaus. An oracle having foretold that her son should slay Acrisius, the latter imprisoned D. in a brazen tower, but Zeus (Jupiter) visited her in the form of a golden shower, and by him she became the mother of Perseus. At the child's birth she was cast adrift at sea with him in a chest, but they drifted in safety to Seriphos Is., where a fisherman, Dictys, gave them shelter. They lived here till Perseus grew up, and then returned to Argos, where he accidentally killed Acrisius at Larissa. There are many famous paintings of D., including Rembrandt's, Correggio's, and two of Titian's.

Danaides (Δαναίδες), in Gk. legend, the fifty daughters of Danaus who married the fifty sons of their uncle, Egyptus. To avoid being slain by a son-in-law, as the oracle predicted, Danaus bade his daughters kill their husbands on the bridal night. All obeyed except Hypermnestra, who spared Lynceus. According to later writers, they were condemned for this crime in Hades to fill bottomless vessels or sieves with water perpetually. See Aeschylus, *Supplikes*, and *Dictionary of Classical Antiquities* (trans. from Seyffert), 1906 (Eng. ed. ed. by Nettleship and Sandys).

Danakil (singular, Dankali), name now generally used for the many nomad and fisher tribes living on the coast of N.E. Africa, from Massowa S. to Tajurrah Bay, and thence S.W. to Shoa, in the arid region between Abyssinia and Obock. They are a Hamitic tribe of the Ethiopian branch, well built and slender, with features indicating intermixture of Arab blood. They claim to be Arabs and Moslems, but are really pagans, living by

caravan- and slave-trade, and largely on the milk of their own flocks. Their native name is Afar. For language see Isenberg, *Vocabulary*, 1840. Consult also Scaramucci and Giglioli, *Notizie sui Danachiti*, 1884.



A DANAKIL SHEPHERD

Danapur, see DINAPUR.

Danastris, see DNIESTER.

Danaus, in mythology, son of Belus and grandson of Poseidon, joint-king of Egypt with his brother, Ægyptus. Jealous of the power of the latter's fifty sons, or terrified by an oracle, he fled to Argos (home of his ancestress, Io), and became king there. He gave his fifty daughters in marriage to his brother's sons, commanding them to kill their husbands on the wedding night (see DANAIDES). He was said to have reigned about fifty years, and to have first taught the people to dig wells. D. was considered the founder of Argos, and ancestor of the Danai. See Roscher, *Lexikon der Mythologie*.

Danbury: 1. Vil. of Essex, England, 4½ m. S.E. of Chelmsford. Here is D. Park, one-time palace of the bishop of Rochester. Pop. 2000. 2. Co. seat of Fairfax co., Connecticut, U.S.A., situated on the R. Still. The most important industry is the manuf. of felt hats, which has been carried on for many years. Silver-plated wares are also made. There is a State Normal School. Pop. 22,300.

Danby, Francis (1793-1861), Irish landscape and historical painter. Settled at Bristol for some years. His 'Upas Tree' (Victoria and Albert Museum) was shown at the Brit. Institution in 1820; 'Disappointed Love' in the Academy, 1821. After the 'Delivery of Israel out of Egypt' (1825), he became A.R.A. Other works are 'Golden Age' (1831); 'Sunset at Sea after a Storm' (1824); 'Embarkation of Cleopatra on the Cydnus' (1827); 'The Deluge,' 'Departure of Ulysses from

Ithaca,' and 'The Evening Gun' (1848); 'Fisherman's House, Sunset' (National Gallery) (1846).

Danby, Frank (Mrs. Julia Frankau) (1864-1916), Eng. novelist. Her best novels are *Pigs in Clover* (1903); *The Sphinx's Lawyer* (1906); *The Heart of a Child* (1908); *Let the Roof Fall In* (1910); and *Joseph in Jeopardy* (1912).

Dance, Charles (1791-1863), son of George D. the younger, Eng. dramatist, who wrote over fifty theatre pieces, among them *A Match in the Dark* (1836); *The Bengal Tiger* (1843); and *Marriage a Lottery* (1858).

Dance, George, the Elder (1700-68), architect to the city of London; designed the Mansion House (1739), the old exchequer office in Broad Street, and sev. London churches.

Dance, George, the Younger (1741-1825), succeeded his father as architect to the city of London; rebuilt Newgate Prison (1770-83), and was prof. of architecture at the Royal Academy (1798-1805). His last years were devoted to portraiture.

Dance, Sir Nathaniel (1748-1827), Eng. sailor, son of James D. (d. 1774), grandson of George D. the elder (d. 1768). He entered the E. India Company's service, 1759, commanding a ship, 1787. While commanding the E. India Company's homeward bound fleet (1804) he defeated a strong Fr. squadron of men-of-war off Pulo Aor. and reached St. Helena safely. See Sir A. Markham, *Sea Fathers*, 1832; W. James, *Naval History of Great Britain*, iii., 1860; and F. Marryat, *Newton Forster*, 1865.

Dance-Holland, Sir Nathaniel (1734-1811), Eng. painter, son of George Dance the elder. Learned painting under Hayman, the genre-historical painter. Took up residence in Italy, where he came into contact with Angelica Kauffmann, of whom he was a devoted admirer. From Italy he sent home a number of historical 'quasi-classic' paintings, such as 'Dido and Æneas' (1763), and later in his career continued to produce similar paintings, such as 'Paris and Helen' (1771), 'Orpheus lamenting Eurydice' (1774), and 'Death of Mark Antony' (1776), none of which has survived. He settled in London in 1768 and his name figures among the founders of the Royal Academy. In Greenwich Hospital is his portrait of Capt. Cook and, at Up Park, Sussex, a full-length portrait of George III. Having made a large fortune he abandoned painting, became M.P. for E. Grinstead and, having been created baronet (1880), changed his name to D.-H.

Dance of Death, name of a dramatic or pictorial allegorical representation of the universal power and supremacy of death over mankind, first presented as a church play (see MIRACLES PLAY and MORALITY), dating from about the fourteenth century. It came to be most frequently represented with music and dancing, and all the adjuncts of a festival, to point the contrast all the more sharply. It is supposed that the seven brothers of the Book of Macabees (ii. 7) played an important part in a representation of the kind, or else the first

representation, which took place at the monastery of the Innocents, Paris, fell upon their festival. Hence the origin of the name Chorea Machabæorum, or Danse Macabre, by which it is frequently known. The dramatic form consisted of short dialogues between Death and about twenty-four followers, representing all ranks of mankind. In Spain it appeared as 'La Danza General de los Muertos.' The drama lasted on till about the fifteenth century. In Germany the subject was treated most often. The representations on the cloister walls of the Klingenthal (Basle Convent) date from 1312. There is an example in one of the chapels of the Marienkirche at Lubeck, much resembling one at La Chaise-Dieu in Auvergne of fourteenth-century date. In 1425 a series of pictures was painted on the walls of the monastery of the Innocents. A 'Triumph of Death' (wrongly ascribed to Andrea Orcagna) is in the Pisan Camp Sinto, dating from the fifteenth century. Similar frescoes were executed in London after 1430. In Henry VI.'s reign there was one round the cloisters of Old St. Paul's. The Tower of London, Croydon Archbishop's Palace, Hungerford Chapel (Salisbury), Wortley Hall (Gloucestershire), and Hexham (Northumberland) also had examples. Holbein's fifty-two sketches for engravings are especially famous and original in design—the 'Imagines Mortis' (originals at Leningrad). The first series was engraved by Lützelburger, 1520; the larger was pub. at Lyons (1538) in book form. A modern representation is that of A. Rethel (1848) (q.v.). The subject has been treated in music by Saint-Saëns. Rowlandson's *English Dance of Death* (1815-16) is a modern adaptation. See De Méhel, *Eures de J. Holbein*, i. 1780; E. G. Polignot, *Recherches sur les danses des morts*, 1826; H. F. Massmann, *Die Basler Todtentanz*, 1847; F. Douce, *Holbein's Dance of Death*, 1833; W. Seelmann, *Die Todtentanz des Mittelalters*, 1893; A. Blackwood, *The Dance of Death*, *Tales*, 1927; and P. Rous, *The Modern Dance of Death*, 1929.

Dancetté (from Lat. *dens*, tooth), one of the lines of partition in heraldry, differing from indented only in the greater width and depth of the indentations or notches. The fesse dancetté has only three indentations. They are arranged like the zigzag or chevron moulding, a common ornamentation in Saxon and early Norman architecture.

Dancing, see **FOLK DANCING**.

Dancing, which is patently the expression of a universal instinct for rhythmical movement, is variously practised as an exercise, a pastime, and an art. In its earliest forms it was an expression of strong emotion, and hence came to be associated with religious or patriotic feeling. In the latter class may be placed the many national dances which still survive, not a few of which have been developed and perfected in that nursery of modern D., the Fr. capital. We still have the national dances of the Bohemian, Hungarian, It., Sp., and Polish peasantry, the

Basque mutchilko, the Scottish reel, the Highland fling, the Irish jig, and the hornpipe of the Eng. sailors. Inspiration for battle has often been sought among civilised races by means of the dance. War-dances have flourished among the Amer. Indians, the Maoris, and other races, while Ceylon has had its devil dancers, and Muslim countries their whirling dervishes. The religious dance was known among the Israelites; it found a place in the processions to the Egyptian temples, and it was cultivated by the Gks. D. has never found any permanent place in Christian rites, but has often been known in Christian ceremonies. Carol dances were practised by the early Christians. Until 1737 *la bergette* was danced at Besançon at Easter. At Seville Cathedral, during the Corpus Christi Octave, a ballet is still danced every evening before the high altar, and a religious dance also survives at Alarc in the Balearic Isles. The ballet of the modern theatre, in which posturing and mimetic action are combined and D., had its beginning in the fifteenth century, though it may be said to have been foreshadowed to some extent by the pantomimes of the Romans, and in the religious and dramatic representations of the Gks. In 1489, on the occasion of marriage festivities, a ballet dance was given before the duke of Galeazzo of Milan at Tortona. This appears to be the first record of ballet on any considerable scale. The fame of the performance spread far and wide, and thereafter the ballet became a favourite entertainment on great occasions and celebrations. The dance, which had passed from the Romans to the national theatre of the Its., passed thence to France, where it flourished as it has done nowhere else. The ballet was introduced into France by Catherine de' Medici. Louis XIII. and Louis XIV. were fond of the ballet to excess, and it was in the reign of the latter, himself an enthusiastic dancer, that D. reached the height of its popularity in France. In the middle of the eighteenth century, Noverre did much for the ballet, and introduced the *ballet d'action*.

Among the oldest of the Eng. dances is the morris dance, which was much in vogue in medieval Europe, and was introduced into England in the time of Edward III. The name may refer to a Moorish origin. 'Sir Roger de Coverley' is another old Eng. dance that has survived to the present day. The waltz became popular in the days of Napoleon; it came to England from Germany, but was probably Provencal in origin. The polka is a Bohemian national dance, and was much in vogue half a century ago, but, with country dances and quadrilles, it has declined in popularity. The cotillon has been revived and developed from the old Fr. dance of that name. The lancers was brought to England in 1850 from Paris, where it had originated about fifteen years before. The pavane, the coranto, and the minuet have had their day, though the last named, which at one time was brought to great perfection in France, died hardly.

Some of the old homely dances of Queen Elizabeth's time have left traces in children's games, such as 'kiss in the ring' and 'hunt the slipper.' In the early years of the twentieth century barn dance and variations of the waltz, with more or less intricate sequences of steps led, before the First World War, to ballroom D., which, if more lively in spirit, was much less grateful in form. Various dances were introduced from America having their origin in the uncouth dances of the negroes: such were the turkey-trot, the bunny-hug, and the fox-trot. The two-step came also from America, but was not negroid in origin. Of these only the foxtrot has retained its popularity, but in two different and more graceful forms: the slow foxtrot and the quickstep. The waltz, originally danced quickly, has now a more leisurely tempo. The tango, in 2-4 time, slightly faster than the Sp. *habanera*, came from S. America, but was greatly modified before it could be introduced into European society. The rumba is a Cuban dance, but of African negro origin, in quick 2-1 time.

Stage D. has undergone many changes in popularity. Isadora Duncan, from San Francisco, derived her inspiration from the anct. forms of Greece, and her wonderful rhythmic posturings evoked much admiration. Adeline Genée, a Dan. dancer, was the perfection of lightness and grace in her exquisite ballet dances. Lolo Fuller, an Amer. dancer, was the pioneer of the Serpentine dance; Ruth St. Denis gave representations of nautch and other Oriental dances; Maud Allan raised much controversy by her astounding 'Vision of Salome.' The Russian ballet in 1910 took London by storm with its fairylike nature and graceful freedom of movement: Mordkin and Nijinsky, Karsavina, Lopokova, and Pavlova were the leading exponents of their art. Modern stage D. reveals variants or tap-D. routines added to the eccentricities of individual exponents. Some of the leading modern stage dancers are Jack Buchanan, Jack Hulbert, and Fred Astaire. Women excel especially in acrobatic and *adagio* D. The modern dance orchestra may vary in number from three to twenty or more players. In an average-sized combination of seven performers the instruments are piano, string bass, percussion, violin, saxophone, trumpet, and guitar. Most competent players can perform on two or more instruments (known as doubling), thus giving the orchestra a wider variety of effects. See further under BALLET, COUNTRY-DANCE, JAZZ; MORRIS-DANCE, and RAGTIME. See Nellie Chaplin, *Ancient Dances and Music*, 1909; W. Hobson, *American Jazz Music*, 1940; J. Martin, *The Dance*, 1947; V. Silvestre, *The Magic Way to Ballroom Dancing*, 1947; K. Burchill, *Step Dancing*, 1948; Katharina Breuer and others, *National Dances of Europe*, 1948.

Dancourt, Florent Carton (1661-1725), Fr. actor and dramatist, b. at Fontainebleau of good family. He was educated for the legal profession, but when he appeared at the Théâtre Français in 1685

his gift for comedy at once brought him success as an actor. One of his greatest successes was as Alceste in Molière's *Misanthrope*. He wrote over forty plays, many of which display his genius for depicting peasant characters. Among the best of his plays are *Le Chevalier à la mode* (1687); *Les Bourgeoises de qualité* (1700); and *Le Galant Jardinier* (1704). In his later years D. retired to his château in the country, and devoted himself to writings of a religious character.

Dandelion, or *Taraxacum officinale*, cosmopolitan species of Compositae which differs from such plants as the daisy (*q.v.*) in having all the florets of the head both ligulate and hermaphrodite. It has a tapering, perennial root containing latex, and is sometimes used in the adulteration of coffee. The name is derived from the Fr. *dent de lion*, or lion's tooth, on account of its jagged appearance.

Dandie Dinmont Terrier, called after the character in Scott's *Guy Mannering*, who was founded on a Border farmer, Mr. Davidson of Hindlee, Teviotdale, who had helped to introduce the breed. There are two varieties, peppers and mustards, the former being slate-blue in colour, and the latter yellow. It is a strong muscular dog, a fearless fighter, and somewhat unmanageable. It has in it some bulldog blood. The muzzle is deep and the jaws very strong. The coat is moderately long, and the ears feathered to a point. Weight about 20 lb.



DANDIE DINMONT TERRIER

Dändler, Karl (1840-1910), Swiss historian, b. at Elsau. Among his works are *Geschichte der Schweiz mit besonderer Rücksicht auf die Entwicklung des Verfassungs- und Kultur-lebens* (1883-88); *Kleine Geschichte der Schweiz* (1889). With J. Müller, he wrote *Lehrbuch der allgemeinen Geschichte* (1891); and *Geschichte der Stadt und des Kantons Zurich* (1908-12).

Dandolo, Enrico (c. 1120-1205), doge of Venice from 1192 to 1205. He belonged to an illustrious Venetian family, and was the most distinguished member of any of the name. He is the 'blind old Dandolo' of Byron's *Childe Harold*, his blindness being variously attributed to torture at the hands of Manuel, emperor of Constantinople, to whom he had been accredited as ambassador, and to wounds

in battle. Though about seventy-two when he was elected doge, he proved a vigorous and brave ruler. In two naval battles he successfully ended the war with Pisa; marched at the head of the Crusaders in 1201, and took Constantinople by storm in 1204. Constantinople was plundered, and booty to a vast quantity divided among the Venetians and Fr. It is said that D. might have been crowned emperor of Constantinople instead of Baldwin of Flanders but for the fact that the Venetian Republic would not permit a Venetian citizen to become an emperor (see Gibbon's *Decline and Fall*). Enrico's eldest son, Fantino, was patriarch of Constantinople; and the second son, Rainieri, was procurator of S. Marco, and was killed in Candia (1213). There were two other doges of the D. family: Francisco, elected 1318 (*d.* 1339); and Andrea, elected in 1342 at the early age of thirty-six, author of a chronicle of Venice pub. in the *Itarum Italicarum Scriptores* of Muratori and a close friend of Petrarch, some of whose letters to him are extant.

Dandurand, Raoul (1861-1942), Canadian barrister; b. at Montreal; son of Edouard D. Educated Montreal College, Laval Univ. (LL.B., 1882; LL.D., 1909), and McGill Univ. Called to Quebec Bar, 1883; K.C., 1898. Assistant attorney-general for Quebec Prov. Called to Senate by Lord Aberdeen, 1898. Speaker of Senate, 1905-9. P.C., 1909. Leader of Senate in govts. of Mr. MacKenzie King of 1921 and 1928. President of Assembly of League of Nations, 1925. Wrote *Traité théorique et pratique de droit* (1890).

Dandy Fever, see DENGUE.

Dandy-horse, see under CYCLES AND CYCLING.

Danebrog (*brog*, bunting) is the Dan. national flag, red with a white cross. According to the legend it descended from heaven during a battle in Estonia in 1219, and inspired the downhearted Danes to victory. The royal and the naval ensign is split at the end, while the army flies the ordinary rectangular flag.

Danegeld, land-tax, originally levied by Ethelred the Unready for the purpose of buying off the Danes. It was thus levied in 991, 994, 1007, and 1012. It was also used as a method of taxation by Canute, and, after being abolished by Edward the Confessor, was revived by William the Conqueror, and finally abolished under Henry II.

Danelaw, **Danelagh**, or **Danelagu** (A.-S. *Dena lagu*, law of the Danes), an ancient name for the ter. in England to which Alfred the Great confined the Danes by his wars. It was ceded to King Guthrum after the battle of Ethandun in A.D. 878, and its inhab. were governed by modified Dan. law. It was reduced by Edward the Elder (901-25), revolted in Eldred's reign, but was forced to submit in 954. Deira and Lindsey were the most Dan. parts, and Dan. place-endings—*thorpe*, *ly*, *cæster*—are still common. The D. corresponded to about fifteen of the modern coos. in the N. and E. of England (Yorkshire, Derbyshire, Leicestershire, Norfolk, Suffolk, Essex, Cambridgeshire, Bucking-

hamshire, Bedfordshire, and others), Watling Street being roughly the dividing line.

Danes, name given to Scandinavian tribes, especially to the inhab. of Denmark. In the fifth century A.D. they replaced the Angles and Jutes. They are usually described as a yellow-haired, blue-eyed people of medium height. Tradition points to Zealand as the home of the D.; at a later stage the name D. was applied to all inhab. of Jutland and the is. The old Dan. language occurs in runic inscriptions, 700-1050, the Viking period. Three marked periods in their hist. are the Viking period up to Canute (*d.* 1035), time of Valdemar I. and II. (1157-1227), and the fourteenth century. See also DENMARK. See J. A. Danstrup, *History of Denmark* 1948; and S. M. Toyne, *Scandinavians in History*, 1949.

Danes' Dyke, see FLAMBOROUGH HEAD. **Danevirke**, or **Dannevirke** (Dane's Work), ancient line of earthworks in Slesvig, built originally by the Danes under King Godfred in the time of Charlemagne (A.D. 808), N. of the Elbe, extending for 10 m. from the Sli to the Trone. It was erected as a boundary wall and protection against the Saxons, Franks, and other invaders. The original line was from Slesvig to Hollingsted, but it was enlarged by Queen Thyra in the tenth century.

Dangerfield, Thomas (c. 1650-85), Eng. conspirator, son of a farmer, of Essex. Having robbed his father early in life, he became later a false coiner and a perjurer. He pretended to have discovered a Catholic plot against Charles II., the so-called Meal tub Plot, 1679. Among numerous pamphlets he pub. *Dangerfield's Narrative*. For this he was tried for libel, and sentenced to be pilloried and whipped (1685). He *d.* from a blow shortly afterwards.

Dangerous Trades. This term is used in a somewhat technical sense, not including all D. T., but especially those in which some form of poison or disease is incidental to the trade itself, as now carried on. The designation is reserved not so much for trades in which sudden injury or death may result from machinery as for those in which the causes of danger and injury are slower acting. It cannot be applied to the poor sanitation and ventilation incidental to many trades. The Factory and Workshops Act, 1883, was the first real attempt to deal with the question. The Act of 1891 gave the home secretary power to make regulations for any industry (not domestic) certified to be dangerous to health. By 1898 the inspectors won forty-nine out of fifty-six cases, and these trades were henceforward classed as dangerous. They include, among various others, manufs. of china, earthenware, white lead, lucifer matches, paint, arsenic, dry cleaning, furrier's work, tanneries, use of grindstones, electrics, generating works, quarries, bottling, spinning, weaving, and working in compressed air, i.e. at a pressure higher than that of the atmosphere. Of industrial poisons lead and lead compounds

are the most dangerous, and they concern about 130 trades, including smelting, painting, plumbing, printing, and the manu. of earthenware. All chemical workers are liable to various affections, especially of the skin. Ulcers are common to those working in pitch and tar, and anthrax is known as the wool-sorters' disease. The coal-miner is subject to numerous accidents and the possibilities of danger, especially from gas-poisoning. Miners, stone-masons, and textile workers are subject to dust diseases of the lungs. Cotton is best operated in a humid atmosphere, and the temp. is apt to become dangerously high. Coughs and asthma, accompanied by fever, are sometimes caused by a mould fungus adhering to raw cotton. The Home Office have in Horseferry Road, Westminster, a museum (open free to the public) devoted to the subject of D. T. In 1917 the U.S.A. made an inquiry into the cotton industry, finding the rate of disability for males was 37 per 1000 in May and June and for females 34.4, while in Nov. and Dec. the figures were 18.9 and 17.9 respectively. See E. Collis and Major Greenwood, *The Health of the Industrial Worker*, 1921; T. Oliver, *The Health of the Worker*, 1925; Industrial Welfare Society, *Welfare in Industry*, and *Health Service in Industry*, 1942; Dept. of Health, Scotland, *Health and Industrial Efficiency*, 1913.

Dangs, The, tract of land in the presidency of Bombay, India. It includes fifteen petty states, the Bhils being the chief tribe. The dist. is very thickly wooded, teak and other timber being largely exported.

Daniel, Book of, book of the Bible composed during the reign of Antiochus IV. (about 165 B.C.) by some Jewish author who wished to give his countrymen some consolation in the persecution they were then undergoing, for Antiochus was making a determined effort to substitute the Gk. religion for the worship of Jehovah. Before the days of biblical criticism the book was held to have been contemporary with the period it describes, that of Nebuchadnezzar, king of Babylon, and the following kings. The book falls into two subject divs.: (1) chaps. i.-vi., which tell the hist. of Daniel at the Babylonian court, where he rises to high rank through his power of interpreting dreams; (2) chaps. vii.-xii., containing four prophetic visions. Chaps. i. and ii. (to v. 4) are written in Hebrew, chaps. iii. (v. 4) to vii. in Aramaic, and the rest in Hebrew. No conclusive explanations have yet been given of this change of language. The most probable theory is that the original work, in Hebrew, was trans. into the vernacular Aramaic, and that the trans. was used to supply missing parts in the original. The events described in the prophetic visions clearly refer to the events of the reign of Antiochus Epiphanes, and the historical errors are so palpable that it cannot be earlier than the date now assigned to it. It is generally held to be the work of one author. See commentaries of A. A. Bevan, 1892; Behrman, 1894; J. D. Prince, 1899; and Haupt, *Sacred Books*

of the Old Testament; J. Davis, *Old Testament and Semitic Studies*, 1898. Consult also eds. by R. H. Charles and S. R. Driver, 1921.

Daniel, le Père Gabriel (1649-1728), Fr. author and theologian; entered the Jesuit order in 1667. Louis XIV. gave him a pension and the title of historiographer of France. He wrote *Histoire de France* (1713), of which many eds. and abridgements appeared (see Griffet's, 1750-60). Voltaire criticised it harshly. His *Entretiens de Cléandre et d'Eudore* (1694), was an attempt to refute Pascal's *Provincial Letters*. His *Histoire de la milice française* is well known (1721). D. attacked Descartes's views and doctrines. See C. Sommervogel, *Bibliothèque des écrivains de la compagnie de Jésus*, iii., 1869; P. L. Joly, *Éloges de quelques auteurs français*, 1742.

Daniel, Samuel (1562-1619), Eng. poet, son of a music master, b. near Taunton, Somersetshire. He entered Magdalen Hall, Oxford, in 1579. Leaving the univ. without a degree, he served as tutor in sev. noble families, his patrons including the earl of Pembroke and Lord Mountjoy. He came into favour at court, wrote masques for court festivities, and in 1607 was appointed one of the queen's groom of the privy chamber. Though most successful as a sonneteer, he was persuaded by Spenser to attempt tragedy, and in 1615 he became concerned in a theatrical company at Bristol. His earliest poems, *Delia* (sonnets, 1592), are among his best. His most ambitious work was a lengthy poetical *History of the Civil Wars between York and Lancaster* (1595-1609). His dramatic works include *Cleopatra* (1594); *Philotas* (1601); *The Vision of the Twelve Goddesses* (1604); *The Queen's Arcadia* (1606); and *Hymens Triumph* (1615). Among his poems may also be mentioned the *Compliment of Rosamund* (1592); and the 'Royal Maske,' *Tethys Festival* (1610). His prose works include a *Defence of Ryme* (1603), in which he opposed Campion's opinion that the Eng. language was not suitable for rhyme; and a *History of England* (1612, 1621). Ben Jonson said he was 'a good honest man . . . but no poet,' but he was praised by Drummond of Hawthornden, and in later times by Coleridge and Hazlitt. He bore the title of the well-languaged, but lacks energy and fire, and is thus apt to become tedious. His *Epistles* are generally considered his best work, and his sonnets have had some modern admirers, especially those to *Delia*. His complete works in verse and prose were ed. (1885-1896) by A. B. Grosart. See T. Fuller, *History of the Worthies of England*, 1662; W. Oldys, *Life of Daniel*, 1737; and J. G. Scott, *Les Sonnets elisabéthiens*, 1929.

Daniell, John Frederic (1790-1845), scientist, b. in London. He invented the D. constant battery, a hygrometer in 1820, and a pyrometer in 1830. He was a fellow of the Royal Society (1813), Copley medallist (1836), and was prof. of chem. in King's College, London

(1831-45). His writings include *Meteorological Essays* (1823); and *Introduction to Chemical Philosophy* (1839).

Daniell, Thomas (1749-1840), Eng. painter and illustrator, b. at Chertsey, son of an innkeeper there. Apprenticed to an heraldic painter, a dying trade from which his love of the romantic in architecture and nature would inevitably have driven him sooner or later. A leaning towards archaeology and botany revealed itself in paintings of topographical subjects and flower studies. Spent ten years in India, publishing, on his return to England, his chief work, *Oriental Scenery* (6 vols., 1795-1808). Executed many studies of oriental subjects, including temples and jungle scenes. His other illustrated works, executed in aquatint, include *Views of Calcutta*, *Views in Egypt*, and *Picturesque Voyage to China*. R.A. 1799, and fellow of the Royal Society about the same time.

Daniell, William (1769-1837), Eng. landscape-painter and engraver, nephew of Thomas D. to whose versatility he owed much. D. entered the R.A. schools in 1799, becoming R.A. in 1822. He pub. *A Picturesque Voyage to India* (1801-14); he engraved many of George Dance's portraits. His great work, *Voyage round Great Britain*, was completed between 1814 and 1825. Though his subjects were novel and interesting, his artistic merits were not exceptional. See Redgrave; Sanby, i. 314.

Daniels, Josephus (1862-1948), Amer. democrat, politician, and diplomat; b. at Washington, N. Carolina. Educated Wilson (N. Carolina) Collegiate Institute. Ed. small newspaper *Advance* in Wilson, at eighteen. Admitted to Bar, 1885, but never practised. State printer, 1887-93. Chief clerk Dept. of Interior, 1893-95. Ed. *Raleigh State Chronicle* (1884-94) and *News and Observer* (Raleigh, 1894-1933), the latter, of which he was owner, being an amalgamation of both. Entered the Cabinet as the nominee of W. J. Bryan, his close friend, whose election publicity campaign he had directed—as he did for Woodrow Wilson in 1912. Like Bryan, his outlook was narrowed by his strict views on religion, liquor, and pacifism. It was therefore somewhat anomalous that he was destined to put the Amer. Navy—he was secretary of the navy under Wilson, 1913-21—on an equal footing with that of Britain as the largest in the world. His problem was to find the men, for Amer. sailors' wages, though large, compared ill with those earned on shore; but he made the service more attractive by introducing a system by which the recruit was not only trained in naval matters, but received general educational training and a training in professional and technical subjects. Member Democratic National Executive, 1896-1916. When the Democratic party returned to power in 1933 under Franklin Roosevelt, his former assistant at the Navy dept., D. was appointed ambas. to Mexico, holding that post during Roosevelt's second term. In 1924 he wrote a life of Woodrow Wilson, a sympathetic tribute that revealed little that was unknown. Also wrote on the

navy: *The Navy and the Nation* (1919); and *Our Navy at War* (1922). Other pub.: *Life of Woodrow Wilson* (1924); *Editor in Politics* (1940); and *The Wilson Era* (1945).

Danielson, Mrs. J. S., see HURST, FANNIE.

Daniilo, Petrović Njegoš (1677-1735), ancestor of the dynasty of Petrović-Njegoš, first hereditary prince-bishop (*vladika*) of Montenegro (1697-1735). He caused the massacre of all Montenegrins who were Moslems or partisans of the Porte (1702), and carried on constant fierce wars with the Turks. D. gained the support of the Russians (1711), and entered into amicable relations with them.

Daniilo I., Petrović Njegoš (1826-60), prince of Montenegro (1851-60), with Russian support, succeeding his uncle (Vladika Peter II.), and belonged to the family from which the prince-bishops of Montenegro had been chosen since 1697. D. was educated at Vienna. He declared the line of hereditary prince-bishops at an end on his accession, and began ruling as a secular prince. Fierce war was waged with the Turks from 1852 until, after their defeat at Grahovo (1858), D. obtained the nomination of a European commission to mark a definite boundary between Turkey and the principality. He did much to improve the laws and social condition of his people, issuing the Code Daniilo (1855), which resulted in the disappearance of the customary institutions of theft and the vendetta.

Dankara, dist. of Upper Guinea, W. Africa, situated on the Gold Coast, with considerable gold mines.

Dannat, William T. (1853-1929), Amer. artist, b. in New York. He studied at the Royal Academy, Munich, and was later a pupil of Munkacsy at Paris; especially noted as a figure- and portrait-painter. His 'Castanet Dance, a Quartette' (1884) is now in the Metropolitan Museum, New York. Other works are 'Bavarian Peasant' (1878); 'Aragonese Contrabandist' (1883); and a portrait of Vicar-Gen. Thomas Preston.

Dannebrog, Order of. Second of the Dan. orders of knighthood, founded by Valdemar II., 1219, in honour of the banner of Denmark, which was supposed to have fallen from heaven to inspire the army at the siege of Reval. In 1500 the order was suppressed, but revived by Christian V. in 1671. In 1808 Frederick VI. made it an order of merit for all the Dan. people, whether for military or civil services. It has four degrees, and in addition a class of Dannebrogsmænd, who are not strictly members of the order. In 1842 a special class (grand commanders) was created for persons of royal blood. The decoration is a white enamelled gold cross, suspended by a white ribbon with a red border. The inscription reads: 'God and the King,' and it carries the figures 1219, 1671, and 1808.

Dannecker, Johann Heinrich von (1758-1841), Ger. sculptor, who became prof. of sculpture at Stuttgart. He executed busts of Schiller, Gluck, Lavater, Motternich, and other notable personalities.

His 'Ariadne on the Panther' and his 'Christ' at Leningrad are among his finest work.

Dannemora, tn. of Sweden in the prov. of Upsala. It is the centre of the most important iron field of the country, and the best iron in Sweden is obtained here. Pop. 1700.

D'Annunzio, Gabriele (1863-1938), prince of Montenevoso, It. poet, novelist, and dramatist, b. March 12, 1863, at Pescara, on the coast of the wild region of the Abruzzi, educated at the college of Prato, Tuscany, and at the univ. of Rome. He was the son of the Duchessa Maria Gallese di Roma, of Dalmatian extraction. His first pub., *Primo vere* (verse), 1879, won him notice, and he was welcomed at Rome by the Cronaca Bizantina group. The *Terra Vergine* (1882) was a continuation in prose. *Canto Nuovo* appeared the same year. As a journalist on the staff of the *Tribuna* at Rome he wrote under the name of Duca Minimo. Other earlier works are *Intermezzo di Rime* (1883); *San Pantelone* (collection of short stories, 1886); *Il libro d'Isotta* (1886); *Odi Navali*, and *Poema Paradisiaco* (1893); *Chimera* (1895); *La Canzone di Garibaldi* (1901); *Laudi* (1909); *Elegie romane* (1905); *L'Orazione e la Canzone in morte di Giosue Carducci* (1907). Chief among his novels, which contain vivid descriptions, and show much beauty of style and psychological insight, may be mentioned *Il Piaceere* (1889; trans. into Eng. as *The Child of Pleasure*, 1898); *L'Innocente* (1891); *Il Trionfo della morte* (1896); *La Vergine delle Rocce* (1897; Eng. trans., 1899); *Il Fuoco* (1899). Among his tragedies are *La Gioconda* (1899); *La Gloria* (1899); *La Città morta* (written for Sarah Bernhardt) (1898); *Francesca da Rimini* (1901); *Poi che l'amore* (1906); *Le Martyre de Saint Sébastien* (in Fr.) (1911). A miscellany entitled *La Leda senza cigno* appeared in 1913. In 1914 he produced a play in Fr., *La Pisanella ou la mort morte parfumée*; also *Parisina*, for which Massenet composed music. Many of his shorter stories were obviously suggested by the works of other writers, e.g. *The End of Candia* was clearly founded on Maupassant's *A Piece of String*; *San Pantelone* reminds us of Verga's tale of the rival saints; and *Maestro Peppino's Magic* is a variation of a well-worn comic theme of old It. novelists. Similarly, with many of his long novels, the theme, treatment, and even the phraseology may be at times traced to anterior writers. Where he is original is in his rhetoric; he employs words as a musician employs sounds, and expresses his individuality in swift vital language shot through with colour.

He was in France at the time the First World War broke out, and instantly made it his business to urge Italy to side with the Allies. *Per la più grande Italia*, addresses concerning the war, appeared in 1915. *Contro uno e contro tutti* (1919) was an invective against the Wilson peace policy. D'A. had surprised many by his performances on active service,

the extreme sensuality of his literary work having led people to believe him a weakling. He had been in the artillery, and had lost an eye when practising aviation; but his most remarkable exploit came after the armistice of 1918. The tn. of Fiume on the Croatian coast had been industriously Italianised by Hungary in order to checkmate the Slav pop. The treaty of London (1915) had provided for its annexation to Italy; but, on the emergence of a Yugoslav state, the gov. of Italy in 1918 agreed with it upon a modification of the treaty. Immediately, however, the new imperialism of Italy rose in protest. Contrary to engagement, on April 17, 1918, It. troops occupied the tn., which came to be governed by a self-appointed It. council. It was visited by Mussolini, then a journalist, in May; and during the summer there was fatal rioting, to inquire into which an international commission arrived in July. On its findings becoming known in Aug. the It. pop. rose in revolt; and on Sept. 12, 1919, D'A. entered the place at the head of 1000 men. On the plea of security, the other allied garrisons were persuaded by the It. garrison's commander to embark—thus enabling D'A. to become dictator. He proclaimed It. annexation, and held out against all protests and threats until near the end of Dec. 1920; when, refusing to negotiate with the It. Gov., he surrendered his powers to the Fiume tn. council. He then departed from Fiume, which had begun a short-lived career of independence, Jan. 18, 1921, and retired to Gardone. He pub. in 1921, *Nocturno*, dealing with the blindness he suffered after the aeroplane accident. In 1924 he was made prince of Monte Nevoso, and there appeared the first vol. of *Le faville del Maglio*. In the spring of 1925 he was visited by Mussolini, who had become dictator of Italy. In 1927 the It. Gov. commenced the pub. of his works in 48 vols.; the issue was completed in 1938, the year of D'A.'s death. See C. Bennerhasset, *G. D'Annunzio*, 1901; J. N. Macdonald, *A Political Escapade: the Story of Fiume and D'Annunzio*, 1921; and G. Griffin, *Gabriele D'Annunzio*, 1935.

Dansville, vil. of Livingston co., New York, U.S.A., 48 m. S. of Rochester on the Canaseraga Creek. It is the seat of Jackson Health Resort, a large sanatorium. It has printing and paper works. It was named in honour of Daniel P. Faulkner; it was settled in 1800 and incorporated in 1845. It has large nurseries and vineyards. Pop. 4900.

Dante Alighieri (1265-1321). It. poet, b. at Florence, probably in the latter part of May 1265, some nine months before the battle of Benevento. His father, Messer Alighiero di Bellincione di Alighiero, came of an anc. and honourable family of that section of the city named from the Porta San Piero. In *Inferno*, x. 46-50, D. tells us that his family were strenuous adherents of the Guelph cause, and since the Guelphs were almost all in exile until 1266, it is rather difficult to account for his having been b. at Florence. Probably, however, his father, who seems to have

been a notary, was of too little importance to be molested. Some few references to his relations are found in the *Divina Commedia*, and these may be briefly mentioned. In the heaven of Mars, among the warriors of the cross, D. meets his great-great-grandfather, Cacciaguida, whom other sources tell us to have been b. about 1090, to have married Aldighiera degli Aldighieri, to have been knighted by Conrad III., and to have d. in battle against the infidel. His son, the first to bear the name of Aldighiero or Alighiero, is said by Cacciaguida to be still in the purgatorial terrace of the proud (*Paradiso*, xv. 91-96). The only other member of the family mentioned is Geri del Bello, a grandson of the elder Alighiero and cousin of D.'s father, a sower of discord and a murderer (*Inferno*, xxix. 13-36), whose violent and well-deserved death had not yet been avenged. D.'s mother, Donna Bella, d. soon after his birth, so a certain loneliness marked his life from the beginning. His father married again, Lapa di Chiarissimo Cialuffi, the daughter of a prominent Guelph citizen, and by this second marriage he had a son Francesco, and two daughters, one of unknown name, the other Tana. He himself d. while D. was still in childhood. There is a possible reference to one of D.'s step-sisters in the sonnet, 'A very pitiful lady, very young,' in the *Vita Nuova*. The most salient feature of the poet's youth and early manhood is certainly the story of his love of the mystic Beatrice. The whole story is told in the *Vita Nuova* in an allegorical and poetical manner, and to this work reference must be made. Beatrice has generally been identified with Beatrice, the daughter of Folco Portinari, a wealthy Florentine who d. in 1289. This Beatrice Portinari married Simone del Bardi, a rich and noble banker. There are still some, however, who hold that Beatrice was no real woman, but a mystically exalted ideal of womanhood. In the *Vita Nuova* D. tells us that already at the age of eighteen he had learnt 'the art of saying words in rhyme,' but the first sonnet that has come down to us is in connection with his love ('To every heart which the sweet pain doth move'). He was immediately recognised (1283) as a new poet, and received many answers to this sonnet, including one from the most famous lt. lyricist of the day, Guido Cavalcanti, henceforth to be the first of his friends. Boccaccio tells us that from 1238 to 1289 D. was engaged in study, but there is nothing to mark the outward course of his life. The lyrics of the *Vita Nuova* bear witness to his growing maturity in art, while the prose narrative shows his acquaintance with the Lat. writers. Boccaccio and Benvenuto da Imola also speak of a visit of D. to the univs. of Bologna and Padua, which can hardly have been so early. He was more certainly engaged in the military campaigns of 1288 and 1289, for Leonardo Bruni tells us that he took a prominent part in the battle of Campaldino (June 11). This was the crowning triumph of Florentine arms, and the city was given up to great rejoicing. But on June 9 or 19

Beatrice d. and D. lifts up his voice with the prophet in direct lamentation. It is not easy to get a definite idea of D.'s life during the ten years which followed this event. He seems to have taken refuge in philosophic studies. The poignant reproaches which Beatrice addresses to him when he meets her on Lethe's banks seem to tell us of a serious falling away at this period. Some moral aberration and sensual passion must have called him for a while from the light of reason and the beauty of righteousness. *Tanto giù cadde*, 'so low he fell' (*Purgatorio*, xxx. 136). He became friendly with Corso di Simone Conati, a turbulent and ambitious citizen, and with his brother Forese, a sensual man of pleasure. In sev. sonnets Guido



DANTE ALIGHIERI

Engraving from a painting by Tofanelli.

Cavalcanti rebukes his friend for his altered mode of life, while sev. of D.'s own sonnets seem to show that sev. women crossed his life. Some time before 1297 D. married Gemma di Manetto Donati, a distant kinswoman of Corso and Forese, and the marriage does not seem to have been entirely happy. Gemma bore him four children: Jacopo, Pietro, Antonia, and Beatrice, but she did not share his exile, and was still living in 1332. Upon the abdication of Celestine V. in 1294 Boniface VIII. was made pope, an event ominous for Florence. In 1295, the first year of Boniface's pontificate, D. entered the troublous seas of political life. On Jan. 23, 1296, the pope inaugurated his aggressive policy towards the Florentine republic by a bull denouncing Giano della Bella, a great leader of the popular party, overthrown in 1295, and extolling the prudence of the Florentines in expelling him. Now, although D.'s influence on the policy of the republic has been exaggerated by many, there can be no doubt that from the outset he took a decided attitude in direct opposition to all lawlessness, such as the riot which had overthrown Giano della Bella, and that he opposed any

external interference in Florentine matters whether from Rome, Naples, or France. In 1300 a new div. devastated Florence, originating in the feud between the two distinguished families of the Donati and the Chierchi. The partisans of the former house, consisting mostly of aristocrats and admired by the populace, are known as the Black Guefts or Nerl, while the Chierchi, all-powerful among the burghers, headed the White Guefts or Bianchi. On May 1, 1300, the two parties came to blows, and the whole city was divided. From June 15 to Aug. 15, D. was one of the six elected priors, and from this period he dates all his woes. The leaders of both parties were at first banished, but the Bianchi, who submitted quietly, were soon recalled. The exiled Corso Donati sought the pope, whose aggressions had still continued, and that pontiff summoned Charles of Valois to his support. On Nov. 1, after giving solemn pledges to the Signoria, Charles entered Florence with 1200 horsemen, receiving no opposition. His first act was to recall Corso Donati and his allies, and the Bianchi made no attempt to hold their own. Plunder, massacre, and proscription was the order of the day. In Jan. 1302 D. and four other prominent men were accused of a variety of crimes, all of which the poet denies, and were exiled, their property being confiscated. All his early biographers support his denial. The terms of this decree of exile seem to imply that D. had fled from the city some time before its pub. He himself in the *Convivio* thus sums up the earlier portion of his exile: 'Since it was the pleasure of the citizens of the most beautiful and most famous daughter of Rome, Florence, to cast me forth from her most sweet bosom (in which I was born and nourished up to the summit of my life, and in which, with her goodwill, I desire with all my heart to rest my weary soul and to end the time given me), I have gone through almost all the parts to which this language extends, a pilgrim, almost a beggar, showing against my will the wound of fortune, which is wont unjustly to be oftentimes reputed to the wounded.' We do not know exactly where he went. It may have been either Bologna, Siena, or Verona. In 1303 he was certainly at the latter tn., where he found his first refuge at the house of Bartolomeo della Scala. Meanwhile, after sev. attempts to regain the supremacy, often in alliance with the Ghibellines, the Bianchi party were utterly defeated at Lastra (July 1304). About this time D., who had taken no active steps in the attack on Florence, went to the Studio at Bologna, and between 1307 and 1309 went on to Paris, where he achieved much repute in the schools. Here he probably remained until 1310, when tremendous events put an end to his studies and imperatively summoned him back to Italy. In 1309, after the death of Albert of Austria, who had totally neglected Italy, Henry of Luxemburg was elected emperor with the approval of the pope. He immediately asserted his position as true king of the

Roms. and successor of Cæsar, and moved S. to join all Italy together under a united church and empire. D., before the end of March 1311, had paid his homage to the new emperor, and had already written the first of a series of letters to the Ita. and Florontines in which he calls on them to submit to the absolute authority of Henry. But Florence was the most perverse of the great cities. She supported all who were opposing the emperor, treated his messengers with contumely, and formed a Gueft alliance against him with King Robert of Naples as her chief ally. D. urged the emperor against Florence (the sick sheep that infects all the flock of the Lord with her contagion), and the probable result of this and other letters was that a new condemnation was pronounced against him in Sept. 1311, making his exile perpetual. For a while Henry besieged Florence, but he had to retreat before the end of 1311, and two years later he died when about to renew the attack. And all hope being gone, the poet remained silent. From the spring of 1311 till the end of his days at Ravenna, which may be termed the last period of his exile, D.'s movements are hardly known at all, except by more or less certain conjecture. He had now given up all hope of returning to Florence, and wandered about in great poverty, under the protection of various lords, in different parts of Lombardy, Tuscany, and Romagna. There is a tradition, founded on *Paradiso*, xxi. 106-120, that he retired to the convent of Santa Croce di Fonte Avellana in the Apennines, engaged on the great *Commedia*. He seems at one time to have visited Lucca, and in 1316 an amnesty was offered to him with many other exiles, but on conditions too degrading for him to accept. Towards the end of 1316 he went to Verona to renew his friendship with Can Grande, son of Bartolomeo della Scala, and in 1317 he finally settled at Ravenna. Here ensued a quiet period, for he was treated with honour and surrounded by congenial companions. Then in 1321 he was sent on an embassy to Venice to settle a quarrel which had arisen between the two cities. He returned sick with fever, and passed away on Sept. 14, the Feast of the Exaltation of the Holy Cross, 1321.

Dante's Works.—Before dealing in detail with the more important of the works, it will be as well to give a general account of his entire production. His works fall into three distinct periods. The first is the period of the new life, the epoch of the worship of the real Beatrice, in which the youthful poet beheld many things by his intellect, 'as it were dreaming.' This period includes the *Vita Nuova* with its lyrics, and closes with the promise to write yet more concerning her than has before been written of any woman. The second period is that of passion, political turmoil, and philosophical research, and marks a great advance in almost every direction. It includes the greater part of the *Canzoniere* collection, the two unfinished prose treatises—the *Convivio* and

the *De Vulgari Eloquentia*, and the political letters connected with Henry VII. The Lat. treatise, *De Monarchia*, may also belong here. It may be observed here that the ideals of the empire of the Ger. Caesars, the papacy, Venice, Spain, and Bourbon France (that is, those empires which preceded the modern Brit. Empire) are completely enshrined in the *De Monarchia*, a work which knits itself closely to Caesarian and to consular Rome. Connecting the second and third periods comes the letter to the It. cardinals on the death of Clement V. (1314). The last period is that of the *Divina Commedia*, the return to Beatrice, but now the allegorical Beatrice, as well as the two eclogues and the letters to the Florentine friend and to Can Grande, if these are authentic. Among apocryphal works may be mentioned the *Questio de Aqua et Terra*, in Lat. prose, and the *Seven Penitential Psalms* and the *Profession of Faith* in It. verse. Sev. of his smaller poems, to which he incidentally makes reference in other works, are now lost.

D. acknowledges Guido Guinicelli as his master in poetic art and the founder of the new school of It. poetry (*Purgatorio*, xxvi. 97), whose doctrine of love expounded in the 'Canzone of the Gentle Heart' is the most fitting introduction to the *Vita Nuova* and the *Canzoniere*. The *Vita Nuova* may be considered as a preparation for the *Commedia*, inasmuch as it tells us how the divine singer became a poet, and how she crossed his path who was to be his spiritual pilot over that mighty ocean. It is the most spiritual and ethereal romance of love that exists, but its purity is such that it comes, not from innocent simplicity of soul, but from self-repression. It tells the whole story of D.'s love for Beatrice from his first sight of her in their ninth year to a vision which is the anticipation of her final apotheosis. Under the heading of the *Canzoniere* are included all D.'s lyrical poems, together with a few that are more doubtfully attributed to him. They fall into four groups: the first of the *Vita Nuova* period; the second in which allegory is beginning to supplant the real Beatrice; the third expressing passionate love of other real women; the fourth, canzoni on Rectitude, Nobility, and Galantry. Just as, after the death of Beatrice, D. collected all his early lyrics in a prose narrative, so in the *Convivium*, or Banquet, he attempts to collect fourteen of his later canzoni, with a prose commentary to the glory of his mystical lady, Philosophy. The work, however, was left incomplete. The first of the Lat. works is the *De Monarchia*, an attempt to solve the burning medieval question of the relations of Church and State, of spiritual and temporal authority. It is divided into three books, and has been described as 'the most purely ideal of political works ever written.' The *De Vulgari Eloquentia* is incomplete, only two out of the four books having been written, the second remaining unfinished. It deals first with the search for the highest form of the vernacular, and secondly, with the appli-

cation of the vulgar tongue to poetry. Ten Lat. letters are also extant and ascribed to the divine poet, but only that to Henry VII., emperor of Germany, is universally accepted as genuine. One of them, that to Can Grande, is a miniature philosophic treatise in epistolary form, at the same time being a dedication of the *Paradiso* to the young lord of Verona. It is probably authentic, and its date would be about 1319. The eclogues, two delightful pastoral poems in Lat. hexameters, belong to the closing period of D.'s life, when he was engaged on the *Paradiso*. In spite of the testimony of Boccaccio and Leonardo Bruni, their authenticity has been questioned.

Though the *Divina Commedia* must be regarded as the work of his closing years, it is poetically placed in the spring of 1300, before D.'s election to the priorate, and the poet puts himself in the position of a man relating a vision which he had seen twenty years before. Hence all events subsequent to April 1300, such as the faction fight of May in that year, are spoken of prophetically as future events. Approximately, the completion of the *Inferno* and *Purgatorio* may be placed between 1314 and 1319, that of the *Paradiso* between 1316 and the day of his death. The poem is a vision of the world beyond the grave, and also an allegory, based upon that vision, of the life and destiny of man, his need of light and guidance, his duties to the temporal and spiritual powers, to the empire and to the Church. In the epistle to Can Grande, the poet tells us that the allegorical meaning is 'Man as by freedom of will, meriting and demeriting, he is subject to justice rewarding or punishing.' The *Inferno* represents the state of ignorance and vice; the *Purgatorio* is the life of converted sinners, obeying Caesar and reconciled to Caesar, doing penance and striving Godwards, after the state of innocence has been regained in the earthly paradise; the *Paradiso* represents the ideal life of action and contemplation, closing in an earthly foretaste of the Beatific Vision. This may be applied to the moral or spiritual Hell, Purgatory, Paradise of men still united to their bodies in this life, as well as to the essential Hell, Purgatory, Paradise of disembodied spirits. The end of the poem, as the epistle to Can Grande shows, is to remove those living in this life from the state of misery and lead them to the state of felicity. In the individual, this object is attained in the manner described above, in the universality it can only be effected by the restoration of the empire and the purification of the Church. To aid in the attainment of this end, D. has two guides: Virgil, representing Reason or Human Wisdom, and Beatrice, representing Revelation or Divine Wisdom. At times Virgil seems invested with the power of the empire, and Beatrice with the authority of the Church. The personal meaning, too, must not be forgotten. The allegory is partly dropped when Virgil leaves Dante in the Earthly Paradise to return to his own sad place in Limbo, and entirely when Beatrice is last seen

enthroned in glory beneath Madonna's throne. The metrical structure is complicated. Each of the three *Canticas* is divided into cantos, the *Inferno* into thirty-four, the *Purgatorio* into thirty-three, the *Paradiso* into thirty-three, thus making up a hundred cantos, the square of the perfect number. Each canto is composed of from thirty-eight to fifty-three *terzine* or *terzette*, written in *terza rima*, thus ABA, BCB, CDC, . . . with an extreme line or *tornello* rhyming with the second line of the last *terzina* to close the canto thus . . . XYZ, YZYX. The *Divine Comedy* is issued in the Temple Classics in 3 vols. with It. and Eng. on opposite sides. Rossetti's trans. of the *Vita Nuova*, with the sonnets of D. and his contemporaries, is to be found in Everyman's Library. The best ed. of the works is the Oxford *Dante* (1894, 1924), ed. by E. Moore. See P. Toynbee, *Dante Alighieri, his Life and Works*, 1893; F. X. Kraus, *Dante, sein Leben und seine Werke*, 1897; E. Moore, *Studies in Dante*, 1896-1917; R. T. Holbrook, *Portraits of Dante*, 1911; E. Gardner, *Dante* (Temple Primers), and *Dante and the Mystics*, 1912; P. Wicksteed, *Dante and Aquinas*, 1913; B. Croce, *La Poesia di Dante*, 1921; E. Gilson, *Dante the Philosopher*, 1948; J. H. Whitfield, *Dante and Virgil*, 1949; lives by H. Hauvette, 1930; N. Zingarelli, 1931; and M. Barbi, 1933.

Dante da Majano, It. lyrical poet of the early fourteenth century, b. at the end of the thirteenth, contemporary of Dante Alighieri. He was a slavish imitator of the troubadours, two poems being in Provençal, but had a considerable reputation. His reply to Dante's first sonnet (*A ciascun' alma presa*) was very coarse. A collection of his works, entitled *Sonetti e Canzoni di diversi antichi autori toscani*, appeared 1727. A later ed. is that of Bertacchi (1896). Novati (1883) refuted Borgognoni's arguments (1882) against the existence of such a poet.

Danton, Georges Jacques (1759-94), 'the Titan of the Fr. Revolution,' b. at Arcis-sur-Aube, of well-to-do parents. He received a good education, and in 1780 went to Paris, where he practised as an advocate until the outbreak of the Revolution. He took no prominent part in the earlier stages of the Revolution. He first came to notice as founder and president of the Cordeliers' Club, which, though local in origin, soon began to attract the more extreme revolutionists. D. does not appear to have taken any prominent part in the great events of 1789, the fall of the Bastille and the forcible removal of the court from Versailles to the Tuilleries. In the following year one finds him urging action to prevent the arrest of Marat, and in the autumn he appears to have been made commander of the battalion of the National Guard in his dist. In 1791 the death of Mirabeau (who fully appreciated D.'s powers) hastened the downfall of the monarchy. From a minor administrative office, D. was, in 1792, made minister of justice. This appointment, following the march on the Tuilleries, has been adduced as a proof that he was con-

cerned in that affair, but that he was so is not at all clear. Henceforward until his death his personality looms large in the story of the Revolution. He himself had no part in the infamous Sept. massacres, but he sought to justify them as inevitable excesses. It was his eloquence that inspired his countrymen to drive back the Prussians when they sought to restore the monarchy. 'We must dare,' he said, in words that became proverbial, 'and again dare, and for ever dare.' He voted for the death of the king in Jan. 1793. He was one of the original members of the Committee of Public Safety, and was frequently sent on special missions. In the convention he became leader of the Mountain, a party so named from the high



GEORGES JACQUES DANTON

benches on which its members sat. Under his leadership they overcame the more moderate Girondins, or country party, but D. then found that he could not control the party he had led to victory. His enemies won over Robespierre to support their intrigues, and D., either careless or disdainful of his enemies, was arrested without difficulty. On April 2, 1794, he was brought before the revolutionary tribunal which he had created a year before, and when his eloquence made a great impression on the people he was sentenced to death without further hearing. He was executed on April 5, 1794, with fourteen others, including Camille Desmoulins, his comrade from the early days of the Cordeliers' Club. See A. Bougeart, *Danton, documents authentiques*, 1861; and lives by A. H. Beesly, 1899; H. Belloc, 1899; and L. Modelin, 1914 (trans. 1921).

Dantzg, or Dantsic, see DANZIG.

Danube, second largest riv. of Europe, its length of 1740 m. being only exceeded by that of the Volga. It has its origin in the Brigsach and the Brege, two int. streams that rise in Swabia in the Black Forest. They unite at Donaueschingen, and the D. flows thence first S.E. to Gutmadingen, and then N.E. as far as Regensburg. Here it turns S.E., having reached its most N. point at Regensburg, and

continues to flow in that direction as far as Vác (Waitzen), 20 m. N. of Budapest. In this part of its course the riv. passes through wild and romantic scenery, and the crystalline rocks of the Bohemian forest are found along the banks as far as Aschach. It leaves Austria by means of what is known as the Carpathian Gate, a narrow opening between the mts. and forms the boundary between Czechoslovakia and Hungary. Before reaching Vác the stream divides in one or two places, and the is. thus formed include the Great Schutt and St. Andreas is. Farther down its course are found Csepel, Margitta, and other is. Near Vác the riv. turns sharply to the S., and continues to flow due S. over the Hungarian plain, where it is continually making fresh channels, for about 230 m. It turns S.E. once more in Yugoslavia and E. of Belgrade forms the boundary between Yugoslavia and Rumania. A series of rapids occurs on this stretch of the riv., the most important being at the Iron Gates, below Orsova. Proceeding in an E. direction, the D. drains the country lying between the Transylvanian Alps and the Balkans. It gradually turns from S.E. to N.E., from Silistra, skirting the Dobrudja, it runs N. as far as Galatz, and then turns E. at a right angle, and goes into the Black Sea. The delta of the D. begins a few miles after Galatz and a few miles W. of Tuldja. The extreme mouths are 60 m. apart, and the expanse lying between these extreme branches, comprising about 1000 sq. m., is little more than a wilderness of rushes. The prin. arms of the riv. are the Sulina, Killa, and St. George. The area drained by the riv. in the whole of its course is estimated at over 315,000 sq. m. The D. is distinctive among important European rivers in that it flows from W. to E. It has, roughly, about 400 tribes, about one in four of which are navigable. In its upper course it receives the Lár and the Lech from the right. Passing through Austria and Hungary it receives the March, Waag, Gran, and Theiss from the left, and the Enns, Raab, Dravo, Save, and Morava from the right. Lower down it is joined by the Seret and Prut. The prin. mts. on the D. are Ulm, Passau, and Regensburg in Germany; Vienna and Linz in Austria; Bratislava (Pressburg) in Slovakia; Budapest in Hungary; Belgrade in Yugoslavia; Lom-Palanka, Vidin, and Ruschuk (Russe) in Bulgaria; Orsova (Iron Gates); Turnu Severin (where a bridge is projected to link Rumania with Yugoslavia); Braila; Galatz (confluence of the Sereth), and Sulina, the Black Sea port, in Rumania. The width of the riv. varies considerably, and at some points the opposite shore is hardly discernible. It is first navigable at Ulm, and, thanks to various improvements, is now navigable continuously from that point to its mouth. Engineering work to this end was undertaken at Vienna, Budapest, and the Iron Gates.

The European commission of the Danube, appointed in 1856, controls the lower portion of the riv., and has done much to improve navigation at the delta.

The commission has also made great progress in the deepening of the riv.-bed, so that at Sulina, for example, the depth has been increased from 9 to 24 ft. It has also linked up various parts of the riv. by canals, so that the route for navigation has been shortened, and the mileage reduced from 45½ to 33½ nautical m. The D. is connected with the Rhine and the Elbe by canal, and the famous Ludwigs-kanal has united the D. with the Main since 1844. A new and deeper canal is under construction to permit the passage of larger craft than at present, thus linking up the whole Rhine and D. systems across Europe from the North Sea to the Black Sea. The tonnage clearing from the D. ports in 1923 was 825,524 tons. Before the Second World War Rumania estab. a naval base at Sulina, and the force on the D. consisted of seven monitors, seven vedettes, and some small vessels; the naval school was situated at Galatz. Bulgaria was prohibited from maintaining any warships on the D., but was permitted to retain for the protection of its trade and fishery a small number of unarmed torpedo and motor-boats. Sea-going vessels of 600 tons can now go nearly as far as the Iron Gates, while vessels of 2500 tons can go above Galatz.

Danubian International Regulation.—A European commission of the D., with headquarters at Galatz, was appointed by the treaty of Paris, 1856, after the Crimean war. Its function was to control the navigation of the riv. from Braila to Sulina (at the mouth). Up to the First World War the whole riv. was under its control, and it was kept in power by various later agreements, 1871, 1878, and 1883, and from 1904, by tacit prolongation for successive terms of three years until the war conditions of 1914–19 suspended the validity of agreements between European nations. The later International D. Commission, with headquarters in Belgrade, was created by the treaty of Versailles by a convention instituting the definitive status of the D. signed in Paris (July 20, 1921), by all the chief nations of Europe with riparian rights or commercial interests, the convention coming into force on Oct. 1, 1922; and in the following year a second convention was signed (May 27) by riparian powers approving arrangements regarding a permanent technical commission for the D. The convention of 1921 provided that the navigation of the D. should be equally free to all nations from the Black Sea to Ulm and instituted schemes for the improvement of the waterway; it decided that no passenger or goods traffic should receive any preferential treatment in any state. Ships were to be taxed according to their tonnage, for the purpose of providing revenue. The headquarters, which were at Bratislava, were to be maintained for five years, and afterwards transferred to other mts. on the D. for periods of five years when these were deemed especially suitable. A pilotage and riv.-improvement service was maintained by this commission at the Iron Gates (headquarters at Orsova), the expenses being

met by shipping dues. Receipts of this commission in 1937 totalled 3,500,000 gold francs, and expenses 2,200,000. Much hist. therefore lies behind current discussion of the control of the D., particularly following the emergence of Russia as a leading European power. Russia is traditionally hostile to international control of the riv., which, as shown above, originated after her defeat in the Crimean war. For Russia the delta of the D. has always entered into the question of the Black Sea and the Straits. More recently Russia has been concerned, not only with the delta and oversea trade, but also with the upper reaches and trade up and down the riv. These distinct aspects of

invasion of Russia in 1941 the whole D. was controlled by Germany for the next three years. The Brit. Gov., for its part, protested in 1940 about the Russo-Ger. negotiations, reserved its rights under existing agreements, and refused to recognise any new arrangements which Germany and Russia might make between them. At the Paris conference of foreign ministers in 1946 Mr. Bevin, representing Britain, said he would accept Mr. Byrnes's (U.S.A.) proposal that a clause in the treaties should stipulate that navigation should be free and on equal terms for all states, 'providing it was also agreed that a Danubian conference could be called within a fixed period after the conclusion



THE RIVER DANUBE AT BELGRADE

Yugoslav Embassy

Danubian trade are, respectively, reflected in the sphere and function of the two controlling commissions, which, according to the Brit. view, are juridically and technically, both still in being, though neither can (1949) now function. Russia was not a riparian owner from 1856 to 1878, nor again from 1917 to 1940, but none the less has always been jealous of any rival in the delta. Germany up to 1918 was content to allow her ally Austria to deal with Danubian problems, but two decades later, with Ger. military penetration of the Balkans, she came into conflict with Russia (1940). The war in 1939 suspended the work of both commissions, but in 1940 Germany summoned a conference at Vienna to estab. a provisional administration for the upper D., Russia not being invited. Russia protested, averring her interest thenceforth in all Danubian problems, maritime and fluvial, and indeed claiming that the provisional regime for the maritime D. should be left exclusively to herself and Rumania. In Dec. 1940 the conference adjourned *sine die*, and following the Ger.

of the treaties,' thereby following the precedent of the previous world war when an inter-allied D. commission under Adm. Sir E. Troubridge, which had replaced the D. command, was itself superseded in 1920 by the International Commission. This conference was held in Aug. 1948 at Belgrade, and resulted in the adoption by the conference of a new Soviet-sponsored convention which, while reaffirming the principles of freedom and equality of access for all nations, would limit the membership of the new commission to riparian states (among them the R.S.F.S.R. and Ukraine), conditions of traffic to be controlled by the Soviet-Danubian naval companies. The delegates of the W. powers maintained, however, that the whole new statute was *ultra vires* as the acquired rights of France and Britain could not be abrogated without their consent. For battles on the D. in the Second World War see under EASTERN FRONT, or RUSSO-GERMAN CAMPAIGNS IN SECOND WORLD WAR, and also under BUDAPEST, VIENNA, etc. See F. Heiderich, *Die Donau als*

Verkehrsstrasse, 1916; E. Driault, *La Question d'Orient des origines à nos jours*, 1921, 1937; T. Geshkoff, *Balkan Union in South-Eastern Europe*, 1940; C. A. Macartney, *Problems of the Danube Basin*, 1942; A. Basch, *The Danube Basin and the German Economic Sphere*, 1944; and F. Hertz, *The Economic Problems of the Danubian States*, 1947.

Danum, see DONCASTER.

Danubian Principalities (Provinces), name formerly given to the principalities of Moldavia and Wallachia. In political discussions it was also sometimes used for Serbia and Bulgaria.

Danvers, tn. of Massachusetts, U.S.A., in Essex co., 20 m. from Boston, of which it is a residential suburb. There are extensive boot and shoe factories, brickfields, etc., also manufs. of electric lamps and fixtures. Among the institutions are a state lunatic asylum, a Catholic college library, and museum. Pop. 14,100.

Danville: 1. Cap. of Vermilion co., Illinois, U.S.A., 46 m. from Terre Haute, 120 m. from Chicago, on Vermilion R., and various railways. It is a farming and coal-mining centre and important manufacturing tn., and has flour, lumber, and woollen industries, glass and iron works. A branch of the National Soldiers' Home is here. Pop. 26,900. 2. Cap. of Boyle co., Kentucky, U.S.A., on the Queen and Crescent route, 68 m. from Louisville. It is an important market for horses, cattle, hogs, and sheep, and contains Centre College (Presbyterian), founded in 1819, state asylum for deaf-mutes, and D. Theological Seminary. Pop. about 6,700. 3. Cap. of Montour co., Pennsylvania, U.S.A., on N. branch of Susquehanna R., and various railways, 56 m. from Harrisburg. The first estab. for manufacturing railroad iron was here, and it has a steel plant and blast furnaces. Anthracite coal, iron ore, and limestone are found near. There is a state insane asylum. Pop. 7,100. 4. City of Virginia, U.S.A., on Dan R., 115 m. from Richmond on various railways. It has numerous colleges and institutions. It is in the yellow-tobacco region, and has much tobacco trade and cotton mills. Pop. 32,700.

D'Anville, Jean Baptiste Bourguignon (1697-1782), famous Fr. geographer and map-maker of Paris. He may almost be said to have created the science of geography, and in 1719 was appointed geographer to the king. He occupied the chair of geography in the Academy of Sciences, 1773. D'A. pub. 211 maps, the chief collections being *Atlas Général* (1737-80); *Atlas Antiquus Major*; *Orbis Romanus*; *Orbis Felicibus notus*; *Géographie ancienne abrégée* (3 vols., 1769); and *États formés en Europe* (1771). See Condorcet, *Éloge de D'Anville*, 1782.

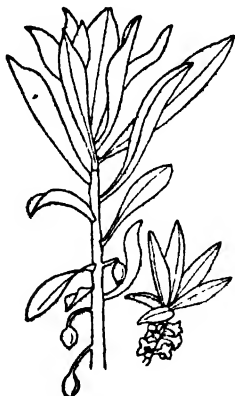
Danzig, or Gdansk, until 1939 a free state under the protection of the League of Nations, and now a tn. of Poland; it includes the city of D., the municipality of Zoppot, and sev. smaller communities. The city of D. stands on the l. b. of the Vistula, about 3 m. from the mouth of the Baltic. From 1303 to 1454 it be-

longed to the Teutonic knights. When we first hear of D. in the tenth century it was inhabited by Slavs. It remained a Slav city until 1308, when the Teutonic knights, fighting as the allies of King Władysław the Short of Poland against the rulers of Brandenburg, captured the city and massacred the inhab. It joined the Hanseatic League in the fourteenth century, and in the fifteenth century its prosperity led to its being called the Venice of the N. Owing to its strategic importance D. was subjected to sev. sieges, and fell in turn into the hands of Denmark, Sweden, Poland, and Brandenburg. In 1834 D. was captured by the Prussians and, rapidly prospering, became the cap. of W. Prussia. On Nov. 15, 1920, by the treaty of Versailles D. received the status of a free city, this being a concession to the Polish demand for a commercial port on the Baltic despite the fact that 96 per cent of the people were Ger. The League of Nations was represented by a resident high commissioner, who had power to arbitrate between Poland and the free state of D. The affairs of the harbour were governed by a committee, consisting of five Polish and five Ger. citizens of D., with a chairman of Swiss nationality. Poland retained the right of free access to the sea for commercial purposes. The foreign and diplomatic relations of D. were also in the hands of Poland. D. possessed a currency peculiar to itself. The gulden, valued about 10d., was divided into 100 pfennigs. Ger. was the official language. In Aug. 1939 Forster, Nazi leader in D., proclaimed the reunion of D. with the Ger. Reich. The D. senate, overawed by the Nazi element, passed a law cancelling the constitution of the free city of D., and asked Hitler to ratify it, which Hitler did, ordering Burkhart, the League of Nations high commissioner, to leave the ter. at once. The political situation in D. grew acute in 1939. Germany complained that D. was systematically neglected by Poland in favour of Gdynia, the new port on Polish ter. Hitler's cry that D. was a Ger. cit., and must return to the Reich, was answered by Poland with the retort that 'the Danzig problem did not exist except in the imagination of the Nazis.' Poland asked for no more than the maintenance of the *status quo* in D., and would, in 1939, have been willing even to agree to certain modifications in Germany's favour. But Hitler wished to use the incorporation of the free city in the Reich as a preliminary step towards the recovery of the Polish prov. of Pomorze (the Corridor), and to the subsequent extension of Ger. domination over the rest of Poland. The city of D. is a busy commercial port, having extensive docks and shipbuilding yards. There is in normal times considerable traffic, both passenger and cargo, between D. and the Baltic ports, Hull, London, and the U.S. After the treaty of Versailles the trade on the Lower Vistula declined, but there was still a large export trade from D. by means of the R. Motława, a trib. of the Vistula. Exports include

timber, grain from the fertile Vistula valley, cement, iron, and steel. The industries of D. include the production of sugar, tobacco, flour, hardware, and jewelry. The public buildings include the church of St. Mary (1343-1503), one of the finest churches on that side of the Baltic; a Gothic tn. hall (fourteenth and sixteenth centuries); and a Franciscan monastery. Marshal Rokossovsky's troops advanced to the gulf of D. on Jan. 26, 1945, and the port was taken soon afterwards. The tn. and dist. was handed over to Poland in the same year, and later the Ger. inhab. were moved out. The pop. of D. city (1938) was 231,000; total pop. of D. 416,000. Area 791 sq. m. See also EASTERN FRONT, OR RUSSO-GERMAN CAMPAIGNS IN SECOND WORLD WAR.

Daphne (Δάφνη), in classic mythology, a nymph beloved of Apollo, daughter of one of the Gk. riv.-gods. She fled from Apollo's pursuit, and was changed into a laurel or bay-tree, which was ever after sacred to Phoebus Apollo. See Ovid, *Metam.* i. 425-567. For the legend of her pursuit by another lover, Leucippus, see Pausanias, viii, 20; Parthenius, *Erotica*, 15.

Daphne, famous grove and sanctuary of Apollo, about 5 m. S.W. of Antioch, Syria, on R. Orontes. It was founded by Seleucus Nicator (c. 321 B.C.). The temple contained a statue of Apollo by Bryaxis, and was in the midst of a grove of cypress and bay trees, with beautiful gardens, baths, and porticoes surrounding it. The temple was burnt (c. A.D. 363). The probable site is now called Bâet-el-Mâ.



DAPHNE LAUREOLA: SPURGE LAUREL

Daphne, genus of the order Thymelaeaceae. The commonest of the species is the mezereon of our gardens, which is found wild in mountainous woods of Middle and S. Europe. The spurge laurel (*D. laureola*) is another Brit. species found wild in woods and hedges; the Garou bush

yields a yellow dye; *D. lagetta*, or *Lagetta tintaria*, the lace-bark tree of Jamaica, contains strong bast fibres and the inner bark is sometimes made into a kind of lace.

Daphnin ($C_{12}H_{16}O_4$), in chem. a bitter glucoside obtained from the bark of *Daphne mezereum* and *Daphne alpina*, found by Vauquelin (see Vauquelin, *A. Ch.*, 84, 173). Also a dark green resin, regarded as the essential principle of the mezereon. It can be easily decomposed into sugar and a substance called daphnetin, whose composition is represented by the molecular formula $C_8H_8O_4$. It may be prepared artificially.

Daphnis (Δάφνις), in mythology, a shepherd and hero of Sicily, said to be a son of Mercury and a Sicilian nymph. He was the reputed inventor of pastoral poetry, and figures largely in the bucolic poetry of the ancients (from the early third century B.C.), as also in the more modern imitations, where he becomes merely a conventional figure. He was under Diana's protection, and taught music by Pan. According to legend, D. was beloved by a Naiad, who punished him with blindness for his infidelity to her. See Theocritus, *Idylls*, i.; Virgil, *Eclogues*, v.; W. Prescott, "A Study of the Daphnis Myth" (in *Harvard Studies in Classical Philology*, x., 1899).

Daphnis and Chloe, see LONGUS.

Dapitan, tn. situated on the N. coast of Mindanao, an ls. of the Philippine archipelago. It is a trading port, and a trade in rice, cocoa, sugar, fruit, and vegetables is carried on. A little gold is also found. Pop. 5000.

Da Ponte, Lorenzo (real name Emanuele Cornigliano) (1749-1838), Austrian librettist, of Jewish descent, but was converted to the Rom. Catholic faith by Lorenzo da P., bishop of Ceneda, whose name he adopted according to the custom of the time. About 1780 he was officially appointed by the Austrian Gov. to be Poet to the Italian Theatre. He wrote librettos for Mozart's *Le Nozze di Figaro* (1786), *Don Giovanni*, and *Così fan Tutte*—the second of these, however, is but mediocre work, and the sustained popularity of the Don Juan legend was due to Mozart's incomparable setting to da P.'s pale version of *El Burlado de Sevilla*. In London from 1793 to 1805, where he wrote for Drury Lane Theatre *La Capricciosa Correto*, *L'Isola del Piacer*, and *La Scuola de Mariati*. In the U.S.A. (1805) he was appointed prof. of lt. literature, Columbia, from 1825.

Dapsang, mt. of Central Asia, which forms the culminating point of the Karakorum range, and rises to a height of over 25,000 ft.

Daqahliya, see DAKAHLIEH.

Daquin, or d'Aquin, Louis Claude (1694-1772). Fr. organist, harpsichordist, and composer, b. in Paris. At the age of six he played the harpsichord before Louis XIV. and at twelve performed the organist's duties at the Sainte-Chapelle. Held various posts as organist, including that of the Chapel Royal. His music is still heard at recitals, particularly *The Cuckoo*, a composition from the first book

of his harpsichord pieces, and a great favourite with both recitalists and amateurs.

Darabgherd, **Darab**, or **Darabjird**, city of Persia in the prov. of Farsistan. It is situated at the base of high hills on a small stream, and is surrounded by orange and lemon groves, date palms, etc. Relics of great antiquity have been discovered in the vicinity. Pop. about 15,000.

Daraga, tn. situated on the is. of Luzon, belonging to the Philippine Archipelago. The chief industry is the distilling of flower essences and alcohol. Pop. 22,000.

Daraiyeh, or **Derayeh**, ruined tn. of central Arabia. It was at one time the cap. of the Wahabis, in Nejd, being composed of five separately fortified quarters. It was destroyed in 1818, after withstanding a siege which lasted about seven months.

Darbhanga, chief tn. of the dist. of that name, in Bihar prov., India. It is situated on the l. b. of the Little Bagmati R., 78 m. N.E. of Patna, and is the residence of the maharaja of D., one of the largest landowners in Bengal. The palace is a very fine building and the tn. contains a number of very large tanks. It possesses a large market-place, many bazaars, and a medical school. There is a trade in salt timber, grains, and oil seeds. Pop. 70,000; dist., 3,000,000.

D'Arblay, **Madame**, see BURNES, FRANCES.

Darboy, **Georges** (1813-71), Fr. prelate, archbishop of Paris, 1863. He upheld the theory of episcopal independence, but, though vehemently opposing the doctrine of papal infallibility, submitted on the adoption of this dogma. At the siege of Paris, while ministering to the wounded, he was seized by the Communists, and shot in La Roquette prison, 1871. He trans. *Dionysius* (St. Denis) the *Areopagitae*, and wrote *Saint Thomas Becket, sa vie et ses lettres* (1860); *Les Femmes de la Bible* (1876, 8th ed.); *Les Saintes Femmes* (1877). See life by J. A. Foulon, 1869.

Darby, **Mary**, see ROBINSON.

Dardanelles, or **Strait of Gallipoli**, ant. Hellespont, a narrow channel connecting the sea of Marmora with the Aegean Sea, and thus separating Europe from Asia. It is about 40 m. in length, and varies in width from 1 to 5 m. One of the narrowest parts is between Abydos and Sestos, where, according to the classic story, Leander swam across nightly to visit Hero. This exploit was repeated by Lord Byron in 1810. It was also about this spot that Xerxes crossed into Europe with his army (by two bridges of boats) in 480 B.C., and Alexander the Great crossed to Asia in 334 B.C. Both sides of the strait are strongly fortified, as it is the key to Istanbul. By a treaty of 1841 it was agreed that none but a Turkish warship should pass through the D. without the consent of Turkey. This understanding was reaffirmed in 1871 and 1878. In 1904, during the Russo-Jap. war, two Russian volunteer fleet cruisers passed through as merchant ships. Sev. castles are situated on the shores of the strait, including two bearing the name

of the D. on the sites of Abydos and Sestos. The chief coast tns. include Gallipoli, Lapsaki, Galata, Kild, Bahr, and the fortified seaport of Sultanieh-Kalehsi. The D. take their name from the ant. Dardanus, a Gk. city on the Troad. They were closed to merchant shipping in April 1912 during the Turco-It. war, but were reopened a month later in response to representations from Great Britain and other European powers. The Gallipoli peninsula was the scene of fighting during the second half of the Balkan war, 1913.

Attack on the Dardanelles, 1915.—Shortly after the outbreak of the First World War the Turkish Gov., under Ger. pressure, closed the D. to commerce, as a reply to the allied protest regarding the Ger. cruisers *Goeben* and *Breslau* (see 'GOEBEN' AND 'BRESLAU'), which, having taken refuge in Constantinople harbour, were dominating that city with the connivance of the pro-Ger. party under Enver Pasha. Thus Russian grain exports were effectually sealed up in the Russian ports, and a few days later Turkey was openly ranged with the central empires against the Allies. The Allies, realising how great would be the moral and practical effect of taking Constantinople, prepared to force the D. The political and military importance of the straits at this time was almost incalculable: the capture of Constantinople, which would have been the corollary to success, would not only have opened the way to the Russian grain cargoes, but would have thwarted Ger. control of the Bagdad railway, enormously enhanced allied prestige throughout the Muslim world, probably kept Bulgaria out of the war, and, further, by releasing the Russian armies in the Caucasus, have tended to shorten the war. It was, however, recognised that the operation of forcing the D. was hazardous, especially as Ger. experts had superintended the mounting of powerful 14-in. Krupp guns on the shores so as to command all approaches. From Feb. 19 to Mar. 15, a squadron of obsolescent Fr. and Brit. battleships, supported by the *Queen Elizabeth*, *Agamemnon*, and *Inflexible*, and commanded by Vice-Adm. De Robeck, intermittently bombarded the forts Sedd-el-Bahr and Kum Kale at the entrance of the straits. On March 18 an attempt was begun to reduce all the inner forts, commencing with Kild Bahr, within a few weeks. The hope was that once the forts were reduced the minefields would be cleared and the way open for the fleet to proceed up to Constantinople, destroy the *Goeben* and *Breslau*, and take the cap. This ambitious plan seems to have been open to many objections (consult *Dardanelles Report*), especially strategic, and it is not surprising in all the circumstances that it failed. The guns of the forts at the entrance were silenced, but the real defences were in the Narrows, less than a mile in width, and commanded by the forts of Kild Bahr on the W. side and those of Chanak on the E. or Asiatic side. The 15-in. guns of the *Queen Elizabeth*

having carried out a bombardment from the gulf of Saros against the Chanak forts, the allied ships, comprising fifteen Brit. and four Fr. vessels, moved towards the Narrows and concentrated their attack on Kilid Bahr, the impression of the commander being that the Chanak guns had been put out of action. The result was disastrous, for the Fr. ship *Bouret* was shelled and sank with all on board, the *Irresistible* and *Ocean* were sunk (probably torpedoed) on March 18, and both the *Infleible* and the *Gaulois* were severely damaged. The Brit. loss in personnel was 2000. The rest of the fleet steamed out again on the same day, and no further attempt was made to destroy the forts by a naval attack alone. Later, when the fleet co-operated with the landing force, three more Brit. battleships were lost, the *Goliath*, torpedoed off Gallipoli, May 12, and the *Triumph* and *Majestic*, both torpedoed on May 26. (For the land attack which was launched in the same year see under GALLIPOLI CAMPAIGN.)

Naval Operations subsequent to March 1918.—The Brit. submarine E. 15 was wrecked, and the crew captured on April 17. Crews of the *Majestic* and *Triumph* went out and destroyed the hull of the submarine. On April 27 E. 14 went through the straits and sank three Turkish men of war. On May 12 the Turks torpedoed the old Brit. warship *Goliath*. On May 26 and 27 Ger. submarines torpedoed and sank the *Triumph* and *Majestic*. On Aug. 9 a Brit. submarine sank the *Barbarossa* and later the Ger. torpedoed and sank the Brit. transport *Royal Edward*, 1000 Brit. lives being lost.

Among the famous fourteen points set forth by President Woodrow Wilson in Congress on Jan. 8, 1918, was that (No. 12) which insisted on the D. being permanently free to all ships. After the war the internationalisation of the straits became an accomplished fact under the treaty of Lausanne, 1923. A special convention demilitarised zones on both sides of the Bosphorus and sea of Marmora, and prescribed rules for preserving the freedom of the Narrows in peace and war which were applied by a mixed commission of the League of Nations. In 1936 Turkey applied for permission to re-fortify the zone, and this was granted by a new convention signed at Montreux. Turkish troops occupied the area on July 21, 1936. Under this convention belligerent warships may not pass through the straits to the Black Sea. After the Second World War Russia reopened the question of the passage of Russian warships through the D. A Russian note (Sept. 24, 1946) carried still farther the diplomatic exchanges which began on Aug. 22, when the Soviet Gov. proposed to Turkey a revision of the regime of the straits which would substitute for the existing loose but internationally sponsored Turkish control a regional defence arrangement between Turkey and the other Black Sea powers. The W. democracies (America, Britain, and France), expressing substantially similar views, replied that the regime of the

straits was a matter of concern, not only to the Black Sea powers, but also to other powers, including the U.S.A. The Turkish reply rejected the Russian suggestions, while agreeing that the time might be ripe for a revision of the Montreux convention, but only by consultation between its signatories, with whom would be included the U.S.A. See T. Bridges, *On Land and Sea at the Dardanelles*, 1916; E. Delage, *The Tragedy of the Dardanelles*, 1932; A. Kearsley, *Notes and Comments on the Dardanelles Campaign*, 1934; and E. Chatterton, *Dardanelles Dilemma*, 1935.

Dardania was in anct. geography a kingdom in Mysia, Asia Minor, of which the size and boundaries were uncertain. It is mentioned in the *Iliad*, and was, according to Gk. mythology, founded by Dardanus, who swam on an inflated skin from Samothrace to the Troad. The inhab. of D. were the Dardani.

Dardanus (*Δαρδανός*), son of Zeus and Electra, daughter of Atlas. He was the mythical ancestor of the Trojans, called after him Dardanide. Homer reckons five generations between D. and Priam.

Dardanus, **Dardanum**, or **Dardanum**, was in anct. geography a city situated on the Hellespont in Mysia, Asia Minor, about 10 m. S.W. of Abydos. It was built by Dardanus, who was, in Gk. mythology, the founder of Troy.

Dardistan (country of the Dards), name of a mountainous dist. on the N.W. of Kashmir, India, where the R. Indus bends S.; extended as a geographical name for numerous tribes between Kashmir and Afghanistan, on the S. slopes of the Karakoram and Hindu-Kush Mts. It comprises the frontier dists. of Chitral, Swat, and Kafiristan, recently brought under Brit. control. The Dards are an Indo-European people, once Buddhists, now mostly Shiite Moslems. They are also called Kanjur. See J. Biddulph, *Tribes of the Hindoo Koosh*, 1880; and G. Leitner, *Hunza and Nagar Handbook*, 1893.

Dare (fish), see DACE.

Dar-el-Beida, see CASABLANCA.

Dares (*Δαρης*), priest of Hephestus (Vulcan), mentioned in Homer's *Iliad*, v. 9, and praised for his wisdom. He was said to have been present at the siege of Troy, and an older story of Troy's destruction, written on palm leaves, was attributed to him. There is an extant prose narrative (forty-four chapters) ascribed to Dares Phrygius, written in very bad Lat., *De Excidio Troie Historia*, purporting to be a trans. from the Gk. by Cornelius Nepos, but apparently belonging to the fifth century A.D. Guido delle Colonne's *Historia Troiana*, a romance based on the Lat. version in the thirteenth century, closely resembles Benoit de Sainte-Maure's *Roman de Troie*. It was often printed with the works of Dictys Cretensis (by Dacier, 1680; by Meister, 1873).

Dar-es-Salaam (Arabic, house of peace), seat of gov. of the Tanganyika ter., formerly cap. of Ger. E. Africa. Has about 63,300 inhab., with quays and floating

dock, and a railway to the interior which made it the commercial centre of Ger. E. Africa, good hospitals and schools, museum, two churches, electric light, European and native quarters. Terminus of the Central railway to Kigoma (775 m.). D. is a port of call for the empire mail service. Its harbour is accessible to ocean-going vessels. It was bombarded by the Brit. in 1914 and evacuated by the Gers. in 1916. The dist. of the same name has 183,000 inhab.

Darfield, par. and tn. of W. Riding, Yorkshire, England, on the Dearne, 5 m. from Barnsley. Coal is worked in the neighbourhood. Pop. 5600.

Dar-Fur, prov. in the Anglo-Egyptian Sudan, formerly a centre of the slave trade. It was an independent kingdom until 1874, when it was nominally annexed to Egypt. Subsequently, however, it suffered from the domination of the Mahdi, and his successor, the Khalifa, until the defeat of the latter in 1898. It is inhabited chiefly by Arabs and a negro tribe, the Fur; the cap. is El Fasher. The country is an undulating plateau, with flat sandy desert in the N. It produces grain, tobacco, gum arabic, tamarind's dates, white melons, ivory, some copper and iron, and cattle, camels, and game are plentiful. Area 170,000 sq. m. Pop. variously estimated at 1,000,000-1,500,000.

Dargal, hill-range near the Khola Pass, 50 m. from Peshawar, N.W. Frontier prov., Pakistan. During the Tirah campaign the Brit., under Yeatman Biggs, stormed the fortified heights held by Afridis and Orakzais, 1897. The honours were carried off by the Gordon Highlanders, assisted by the 2nd Ghurkas and the 3rd Sikhs.

D'Argenlieu, George Thierry (b. 1889), Fr. vice-admiral and member of the Carmelite order. Called up as a naval reserve officer in Sept. 1939 and rendered distinguished service. He joined Gen. de Gaulle in London as commander in June 1940. Went with the latter's Dakar (q.v.) expedition (Sept. 1940) and was wounded after landing there. Promoted to rear-admiral and sent as Fr. high commissioner to the Pacific. Returned in 1943 to take over the command of the Fr. naval forces stationed in Britain. Promoted vice-admiral (1943). In 1945 he was appointed Fr. high commissioner in Indo-China, being recalled in 1947. Decorated at the Brit. Embassy, Paris in Nov. 1947. Demobilised in 1948 and returned to his monastery as Father Louis de la Trinité of the Carmelite order.

Dargomyzhski, Aleksandr Sergeevich (1813-69), Russian composer, b. in the gov. of Tula, of good family and brought up on a country estate. His parents, however, had fled from their own home near Smolensk during the Napoleonic invasion of 1812. D. early showed musical talent and between six and eight years of age was taught to play the piano and violin, while at eleven he had made some attempt at composition. Entered the civil service in St. Petersburg and, moving in fashionable circles, became

well known as an amateur pianist and as a composer of dilettante drawing-room songs. It was his chance meeting with his older contemporary Glinka which gave his talents a more serious bias, and the two composers may be said together to have symbolised the pretensions of Russian musical genius at this period; but whereas Glinka's music was idealistic and lyrical, D.'s was realistic and dramatic. D. is a figure of some importance in the hist. of Russian opera: his first opera was *Esmeralda* (1839), the Fr. libretto of which was taken from Victor Hugo's *Nôtre-Dame de Paris*; but it was not accepted for the Imperial Opera until 1847. This was followed by a cantata on *The Triumph of Bacchus*, a dramatic poem by Pushkin, which D. later converted into a ballet-opera. Then came the opera *The Hussar* (1856) or *The Watersprite*, for the libretto of which D. again turned to Pushkin. The opera, though superior to *Esmeralda*, did not prove successful and D. wrote no further operas for some time. Meanwhile he produced *Knight Errant* and *The Old Corporal*, dramatic ballads which have been compared with the ballads of Schubert. Later D.'s association with Balakirev and his school gave him a leading part in the formation of a national and progressive school of Russian music, breaking with stale conventions and outmoded traditions. The influence of these principles is shown in his last opera, *The Stone Guest*, founded on the story of Don Juan as told by Pushkin. The opera was left unfinished at D.'s death, but was completed, on D.'s directions, by Rimsky-Korsakov (1872). D.'s own views on opera resembled those of Gluck and Wagner in the adaptation of the music to the dramatic import of the text. See monograph by A. N. Drosow (Moscow), 1929.

Darial, famous gorge and chief pass in the Caucasus Mts., situated in the central part of the range. It has been fortified from very remote times, and the present Russian fortress is at the N. extremity, over 1000 ft. in altitude. A military road crosses it, leads from Tiflis to Vladikavkaz.

Daria Shah, see URUMIA.

Darien, Gulf of, forms part of the Caribbean Sea, situated in lat. 9° N. and long. 77° W. On the W. is the Isthmus of Darien, known as Panama. In the S. is the bay of Choco, which receives the R. Atrato.

Darien, Isthmus of, otherwise Panama, the narrow neck of land joining central and S. America.

Darien Scheme, project started by a Scotsman, Wm. Paterson, in 1695, to form a settlement on the isthmus of Darien for controlling trade between the E. and W. Paterson, the founder of the Bank of England, was a bold and enterprising man. His ostensible purpose was to estab. an E. India trade in Scotland; this first developed into the plan of forming an emporium on each side of the isthmus of Panama to estab. trade between the opposite continents, and to wrest the keys of the world from Spain. William III. was opposed to his scheme, but national

enthusiasm carried it through, though it was unable to avert the disastrous fate of the settlement. In 1698 1200 Scottish colonists sailed from Leith to Panama (Puerto Esceces), to lay the foundations of New Caledonia. They made Acta their headquarters, with the name of New Edinburgh, and built a fort, New St. Andrews. The Spaniards proved hostile, and the colonists unfitted to endure the climate and hardships of war and disease. The survivors returned home in 1699, and though two more companies had already been sent out to America, a like fate drove them back in 1700. For the full story consult Sir J. Dalrymple, *Memoirs of Great Britain and Ireland*, 1790; Sir W. Scott, *Tales of a Grandfather*, 1828; J. Burton, *History of Scotland*, viii., and *Darien Papers*, 1849; E. Warburton, *Darien* (novel), 1852; R. Story, *William Carstares*, 1874; H. Bancroft, *History of Central America*, ii., 1883; and J. Barbour, *W. Paterson and the Darien Company*, 1907.

Dario, Rubén (1867-1916), one of the most notable writers of Sp. poetry of his time. Born at Metapa in Nicaragua, he soon made himself the leader of Hispano-Amér. poetry. His first book, *Azul* (1888), was an immediate success. In 1896 he was living in Buenos Aires, where he pub. *Prosas profanas* (1899). In 1900 he came to Paris, where he was to settle down until 1914, when he departed on account of the war to die at León after a short time in a hospital in New York. His best work appeared during his life in Paris: *Songs of Life and Hope* (1905); *The Wandering Song* (1907); *Poems of Autumn* (1910). Since his death he has become a modern Sp. classic. See life by A. Torres-Rioseco, 1931.

Darius I. (521-485 B.C.), first and greatest of the Persian kings bearing that name, b. in 548 B.C. He obtained the throne after the death of Cambyses, but for some time had to contend with rebellion, especially from Babylon under Nidinta-Bel. After obtaining peace within the empire, he proved himself in many ways a wise and enlightened ruler; he divided the empire into twenty satrapies for the purposes of government, systematised the taxation, and improved the roads. His conquests extended from India to Thrace and Scythia. In his expedition of 515 B.C., he transported 700,000 men across the Bosphorus on a bridge of boats. He conquered Thrace and his general, Megabyzus, subdued Macedonia, after which he pursued the Scythians as far as the Volga, but returned with a depleted army. In 499 B.C. the Ionians revolted and were helped by the Athenians. After subduing the revolt D. sent two expeditions against the Athenians. The first ended in the wreck of his fleet in 492 B.C. The second ended in the defeat of the Persian army at the famous battle of Marathon, 490 B.C. He d. while preparing for a third expedition.

Darius II. of Persia (424-405 B.C.), illegitimate son of Artaxerxes I., who succeeded Xerxes II. after murdering his own brother, Sogdianus. His reign was

only notable for insurrection and misrule. He helped the Spartans in the Peloponnesian war.

Darius III. (336-331 B.C.), last of the Persian kings of the Achaemenian dynasty; most of his short reign was occupied by defending the empire against Alexander the Great, who proved victorious. D. was treacherously slain by one of his satraps.

Darjeeling, or Darjiling: 1. Dist. of W. Bengal, India, bounded by Nepal (W.) and Sikkim (N.). It is the N. portion of Rajshahi div., and has two distinct parts, one traversed by the Lower Himalayas, the other by terai, formerly all jungle, but now cleared for tillage and tea-gardens.



Indian Railways

A FRUIT SELLER OF DARJEELING

It produces grain, tea, india-rubber, and cotton. 2. Cap. of above dist., 300 m. from Calcutta, connected with it by the N. Bengal state, and the Darjeeling and Himalaya railways. There are sev. churches, Queen's High School for girls, and other schools and a museum. The bazaar is thronged by folk from all parts, Lepchas, Limbus, Bhutias, Tibetans, Nepalese, Palariás, Bengalis, Kashmiris, and Marwaris. The chief industry is the cultivation of tea, 21,000,000 pounds a year. The Eden sanatorium (nearly 8000 ft. above sea level) is here, formerly for the sick and convalescent members of the Indian army. Magnificent mt. views can be obtained, Everest and Kangchenjunga being visible. It is a favourite summer resort, and is the hot-weather cap. of the prov. Pop. (tn.) 22,000; dist. 283,000.

Dark Ages, name given to the early period of the Middle Ages between the fall of the Rom. Empire, A.D. 475, and the revival of learning on the discovery of

the Pandects at Amalfi, 1137—roughly a period about 700 years. The D. A. seemed to last longer in the N. than in the S., as the revival occurred in Italy sooner than in N. Europe.

Darkhiker, see **NEW**.

Darlan, Jean François (1881–1942), Fr. admiral, b. at Nérac, Lot-et-Garonne, son of the deputy-mayor of that tn. who, later, became minister of justice in Méline's Cabinet. Entered the Fr. naval school, 1899. As a naval cadet he spent much time on the China station, where he acquired the first rudiments of diplomacy as well as naval and military experience. It was, however, not until 1912 that he was promoted a lieutenant. After that he was for a time instructor aboard the training cruiser *Jeanne d'Arc*. The First World War brought a complete change to his career. He obtained transfer to the army as an expert gunner, fought at the Meuse, Alsace, Salonika, and in the battle of Verdun. After the armistice he went to the Rhineland and, later, went back to the navy. It was only in 1928 at the age of forty-five, and with the rank of *capitaine de vaisseau*, that he suddenly achieved a position of great influence. Georges Leygues, minister of marine, appointed him assistant *chef de cabinet* on the military side, and, but for a short interruption, he remained there until 1934. Then for two years he was commander-in-chief of the Atlantic fleet, returning to the ministry as chief of the general staff in 1936. Throughout the period 1926–39 his authority came to him rapidly. In 1929 he was made *chef de cabinet* and a rear-admiral. Three years later he became a vice-admiral and a grand officer of the Legion of Honour.

In 1939 he was promoted admiral. This made him head of the Admiralty as well as commander-in-chief of all the naval and military forces in France, without regard to the seniority of other vice-admirals and high ranks. It invested him with unprecedented power. On the capitulation of France in 1940 he became minister of marine in the Pétain Gov. Later he became vice-premier, foreign minister, and minister of the interior, as well as minister of marine. He was now the real power in France, keeping in close touch with Ger. leaders, and expressing gratitude to Hitler for not 'obliterating France from the map of the world.' In April 1942 he began to lose favour with the Gers., and Laval (*q.v.*) took his place as Prime Minister. D., however, retained command of the armed forces, and, when the Brit. forces took over Madagascar (*q.v.*), he called on the garrison to resist to the utmost. In Nov. 1942, after the Allies landed in Morocco and Algeria, he ordered cease fire, and himself assumed the role of chief representative of Fr. N. Africa in the name of Pétain. By arrangement with the Amer. commander-in-chief, Gen. Eisenhower, he was allowed temporary political status, which he himself enhanced into that of chief of state in Fr. Africa, with a Fr. Council under him. His status provoked bitter criticism, notably among the adherents of Gen. de

Gaulle (*q.v.*), and among many members of the Brit. House of Commons, who had by no means forgotten his former markedly anti-Brit. sentiments. The Vichy Cabinet, however, disapproved of his apparent change of alliance and deprived him of Fr. nationality. Soon afterwards he was assassinated by a young Frenchman at Algiers (Dec. 24, 1942), and the Fr. Imperial Council unanimously chose Gen. Giraud to succeed him as high commissioner for Fr. Africa.

Darlaston, tn. of Staffordshire, England. Gunlocks and nails are extensively manufactured, and there are coal-mines, iron-works, and blast furnaces. Pop. 20,000.

Darley, Felix Octavius Carr (1822–88), Amer. artist and engraver; son of an actor of Eng. birth. He went to New York in 1848, engraving outline illustrations of Irving's works (*Sketch Book*, *Rip van Winkle*, *Legend of Sleepy Hollow*) for the Amer. Art Union (1850). He also illustrated Judd's *Marysart* (1856) which won high praise. D. became a member of the Academy of Design in 1852, and also of the Amer. Society of Painters in Water-colours. He illustrated some of Lossing's many hist. of the U.S.A., Hawthorne's *Scarlet Letter* (1879); and novels of Cooper, Dickens, and Simms. After visiting Europe he pub. *Sketches Abroad in Pen and Pencil* (1868). Among his larger works are 'Cavalry Charge at Fredericksburg, Virginia' (1867); 'Street Scene, Rome' (water-colour) (1876); 'Washington's Entry into New York' and 'Emigrants attacked by Indians'.

Darley, George (1795–1846), Irish poet and mathematician, b. at Dublin, began writing with articles for various magazines. He joined the staff of the *Athenaeum*, and became famous for his sarcastic reviews in it, an example being his attack on Talfourd's *Ion*. He pub. *The Errors of Ecstasy* (1822), a dialogue in blank verse, *Lilian of the Vale*, a story containing the well-known song, 'I've been roaming,' appeared in 1826. Between 1826 and 1828 he pub. manuals of geometry, algebra, and trigonometry, and *The Geometrical Companion*. Carlyle praised these treatises. *Labourers of Idleness* (1829) contain 4 other stories of his. His best lyrical drama was *Sybil*, or *the May Queen* (1827), praised by Lamb. He was much influenced by the Elizabethans, and ed. an ed. of Beaumont and Fletcher (1840). *Nepenthe* and *The Lammeryer*, two of his poems, were pub. privately. *It is not Beauty I Demand* (anonymous, in Palgrave's *Golden Treasury*) is really his. See E. Stedman, *Victorian Anthology*, 1895; and C. C. Abbott, *The Life and Letters of George Darley*, Poet and Critic, 1928.

Darling, Sir Charles John, first Baron (1849–1936), Eng. judge, eldest child of Charles D., estate manager. A delicate child, passed his boyhood principally at home—first at St. John's Abbey (Abbey House), Colchester, where he was b.; and then at Langham Hall. Articled to a solicitor in Birmingham, but did not serve out his time. Called to Bar in the

Inner Temple in 1874, practised journalism, and went the Oxford circuit. As a Conservative contested Exeter (1884) and S. Huxley (against Sir Charles Russell, 1885); returned for Deptford, 1888. Remained its representative until elevated to the Bench. Appointed judge of the high court and knighted, autumn of 1897—his appointment creating indignation in the Liberal party and consternation in the Temple (see Lord Birkenhead's *Contemporary Personalities*, 1921). Became known as the judicial humorist. Member of the royal commission on king's bench, 1912; sworn of the Privy Council Jan. 12, 1917. Presided over the ludicrous 'Black Book' (Pemberton Billing) trial, May-June 1918; and over the committee on courts martial, 1919. Retired from the Bench in Nov. 1923; but temporarily returned, 1924. He returned to the Bench again in 1931. Among the trials in which he was judge were the murder cases of Stine Morrison (1911) and Herbert Rowse Armstrong (1922). Pubs.: *Meditations in the Tea-Room*; *Scintillae Juris* (1877); *Seria Ludo* (1903); *On the Oxford Circuit and other Verses* (1909); *Crime and Insanity, Murder and its Punishment, Musings on Murder* (1925); *A Pensioner's Garden* (1926); *Reconsidered Times* (1930); and *Autumnal Leaves* (1933).

Darling, Grace Horsley (1815-42). Eng. heroine, b. in Northumberland; daughter of Wm. D. (1795-1860), lighthouse-keeper on Longstone, one of the Farne Is. At the risk of their lives and at her earnest entreaty, she and her father rescued nine people from the *Forfarshire*, sailing from Hull to Dundee, and wrecked near Longstone lighthouse in 1838. Their heroism was warmly appreciated and rewarded, but she d. of consumption soon afterwards. See *Grace Darling, her True Story*, 1880; E. Hope, *Grace Darling*, 1876; and *Journal of William Darling*, 1886.

Darling, Sir Ralph (1775-1859). Eng. soldier and general. As ensign in the 45th Foot, he helped to suppress the Negro insurrection under Féder in 1793 in Grenada. In 1796 he was made military secretary, served in the W. Indies, and was deputy adjutant-general in the Walcheren expedition. Was governor of New S. Wales, 1825-31. Accused of excessive severity he was recalled and tried, but acquitted and knighted by William IV. in 1835; he became general in 1841. Many places (riv., mts., downs, etc.) were named after him in this period of geographical discovery in Australia. See T. Brahma, *History of New South Wales*, i., 1846.

Darling: 1. Australian riv., 1160 m. long, rising as the Macintyre in the Dividing Range between New S. Wales and Queensland. For some way it forms the boundary between the two, and enters S.E. Queensland. It is a trib. of R. Murray, joining it at Wentworth. Other names are the Calowatta and Barwon. It is navigable as far as Bourke at some times of the year, at others being merely a series of shallow lakes. Among its

tribs. are Its. Dumaresque, Colgoa, Warrego, Gwydyn, Macquarie, Bogan, and Namoi. 2. Dist. of New S. Wales, 50,000 sq. m. in area, in S.W. 3. Range of mts. in W. Australia, running N. to S., parallel with the coast, 20 to 70 m. inland. Sandalwood and timber abound. 4. Squatting and rich grazing dist. of S.E. Queensland, between R. D. and Condamine, W. of Moreton Bay.

Darling Point, tn. of New S. Wales, Australia, forming a suburb of Sydney.

Darlington, municipal and par. bor. in the S. of the co. of Durham, 18 m. S. of Durham and 33 m. from Newcastle, on the Skerne, near its junction with the Tees. It is on the N.E. region of Brit. Railways and on the main north road from London to Edinburgh, and a network of railway lines branching in or near D. gave access to all parts of the kingdom. Industrially it is close to the coal and iron mining dists. The prosperity of D. began with the opening in 1825 of the Stockton and D. railway, the first railway on which a steam locomotive was used for passenger traffic. The first locomotive so used, built by George Stephenson, now stands on a pedestal at Bank Top station on the former L.N.E.R. D., however, has a long record as an industrial tn.; in the days of Bishop Pudsey, more than 700 years ago, dyeing was a flourishing industry in the tn. In the beginnings of the Industrial Revolution the tn. was still principally concerned with the textile industry. Carpet weaving was another prominent local industry. To-day, however, the only branch of the textile industry is a large worsted mill, and the manuf. of railway engines and other plant and equipment takes pride of place, including rolling stock, signals, signal wire pulleys, rails, and sleepers. Steel and iron forgings and steel castings are made for ships, as well as propeller shafts, rudders, guns, and massive stern frames. There is a great bridge-building industry, and among the bridges which were made at D. are the Blue Nile bridge at Khartum; the White Nile bridge at Goz Sbu (Gouma) (1911); the Lower Zambesi bridge (1935); and the Victoria Falls bridge; and, in Britain, the King Edward VII. bridge, Newcastle; Chiswick bridge; Tees transporter bridge; and Newport bridge over the Esk. Other industries are agric. implements and tools; are welding; boiler making and heating engineering; bricks and tiles of all sizes and types; constructional engineering; electrical equipment; furnaces; insulating material; wiremanuf. of all kinds, including extra high strain wire for ropes and hawsers.

D. is a clean and well-paved tn., and, as is often the case in our older tns., the par. church is the most outstanding feature. The present church was founded by Hugh Pudsey, bishop palatine of Durham and nephew of King Stephen, on the site of an earlier Saxon building (begun 1180), and was restored by Sir Gilbert Scott, R.A., during the nineteenth century. The great bells were recast in 1633, and others date from 1755 to 1866. Among its monuments is a carved figure

said to represent Berengaria, wife of Richard I.—though why the memory of a queen who never visited England should be perpetuated in D. is an unexplained mystery. The tn. hall (1863), apart from its handsome tower, hardly does justice to D. Haughton-le-Skene church, dedicated to St. Andrew, is also an architectural feature of the bor. Memorials in the tn. include those to Joseph Pease, son of Edward Pease, the Quaker pioneer of public railways and the first Quaker M.P. to sustain in Parliament his right to affirm instead of taking the oath; John Fowler, inventor of the steam plough; Dr. R. Taylor Manson, geologist and botanist; and John Fothergill, the first teetotal doctor. The First World War memorial takes the form of a hospital founded 1926. The public library, opened in 1885, was endowed by Edward Pease and modernised in 1933.

For over 400 years D. was ruled by the bishops palatine. No charter has been found, but it is believed to have become a bor. by prescriptive right in the time of Hugh Pudsey. In 1270 John of D., who assisted in preparing an ed. of the *Concordances* of Hugh of Saint-Cher, issued his *The Greater English Concordance*, probably the first ever issued. He was confessor to Henry III. and became archbishop of Dublin. During the Pilgrimage of Grace a number of the men of D. joined in the rising led by Earls Neville and Percy, and suffered execution. In his eccles. survey of the dist. Leland describes D. as 'the best market town in the Bishoprick after Durham.' After the rising the king deprived the bishops palatine of much of their temporal power, though it was not until 1863 that D. was represented in Parliament. James II. created his 'friend,' Catherine Sedley, baroness of D. in 1685; the title was revived in 1722 for George I.'s 'friend,' Madame Kilmansegge; and in 1754 the tn.'s name was properly incorporated in the peerage when Harry Vane was created Earl D.—a title now extinct. In 1875, on the occasion of the jubilee of public railways, the statue to Joseph Pease was unveiled by the duke of Connaught. Pop. 72,000.

Darlingtonia californica, single species of its genus in the order Sarraceniales, is a pitcher-plant of the state of N. America which gives it the specific name. The flowers are pale green and white, and the plant requires a warm temp. to favour its growth. See also **PITCHER PLANT**.

Darmesteter, Arsène (1846-88), Fr. scholar and philologist, of Jewish descent. He was a pupil of Gaston Paris (1867), entering the Ecole des Hautes Etudes (1869). He was tutor there (1872), then went to the Faculté de Paris as prof. of the medieval Fr. language and literature. His works are full of creative imagination and valuable, original suggestions. They include *Glosses et glossaires hébreux-français* (1878); and *La Vie des mots étudiée dans leurs significations* (1887). With Hatzfeld he wrote *Le XVI^e Siècle en France*. D. began with him also *Dictionnaire général de la langue française*,

finished by Hatzfeld and Thomas (1895-1900). The *Cours de grammaire historique de la langue française* was ed. by E. Muret and L. Sudre (1891-95).

Darmesteter, James (1849-94), Fr. orientalist, brother of Arsène D.; studied under Bréal and Bergaigne; graduated from Lycée Bonaparte, Paris, 1867. He was tutor at the Ecole des Hautes Etudes, 1877; after Renan's death, secretary of the Asiatic Society, 1881; prof. of Iranian language and literature at the Collège de France, 1885. Among his most famous works are *Haurvatat et Ameretait, essai sur la mythologie de l'Avesta* (1875); *Ormazd et Ahriman, leurs origines et leur histoire* (1877); *Études iraniennes* (1883); *Le Mahdi (The Mahdi, Past and Present)*, trans. 1885). D. visited India (1886), becoming fellow of Bombay Univ. *Chants populaires des Afghans* (1888-90) resulted from this visit. He also wrote *Essais orientaux* (1883); *Les Origines de la poésie persane* (1888); *Essais de littérature anglaise: Les Prophètes d'Israël* (1892); and trans. of selected poems by his wife, Agnes Mary F. Robinson, afterwards Mme Duclaux (q.v.). He trans. the *Zend-Avesta* in *Annales du musée Guimet* (1892-93); and ed. it for M. Muller's *Sacred Books of the East* (1892-93). He ed. the *Revue de Paris* for a time. See *éloge* in *Journal asiatique*, iv., 1894; H. Cordier in *Royal Asiatic Society's Journal*, Jan. 1895; Gaston Paris, 'J. Darmesteter,' in *Penseurs et poètes*, 1896.

Darmstadt, tn. of Germany, in Hessen, is situated at the foot of the Odenwald, 16 m. S. of Frankfurt-on-Main, having broad streets and tasteful gardens. It was not until the last quarter of the nineteenth century that its iron foundries, boiler factories, and machine shops and chemical and pharmaceutical works made it a great industrial centre, while the activity of its architects, sculptors, and artists added applied art. The former grand ducal palace was converted into a museum and state library of 700,000 vols. There are also the Landesmuseum, with a picture gallery, a technical academy, and the Rathaus of 1596. Princess Alice, daughter of Queen Victoria, is buried in the grand ducal mausoleum. Liebig, the chemist, b. 1805, was a native of D. The tn. suffered considerable damage from frequent allied air raids in the Second World War. In the allied advance to the Rhine in 1945 the 5th Div. of the 12th Corps of Gen. Patton's Third Army crossed the Rhine near Oppenheim, S. of Mainz, on March 22-23. The rest of the 12th Corps crossed the riv., and seized D. on the 25th, and then swept on to capture intact the Main bridges at Aschaffenburg. Pop. 111,000.

Darnetal, tn. of France in the dept. of Seine-Inférieure. It is situated on the R. Roble and Aubette, 2 m. E. of Rouen. There are manufs. of heavy woollen goods, blankets, etc., also factories for calico-printing and cotton-spinning. Pop. 7700.

Darnley, Lord, see **LENNOX**.

Darnley, anct. Scottish barony of Renfrewshire, 4 m. from Paisley, 2 m. from Barrhead. From it Sir John Stewart

took the title baron (c. 1461). He later became earl of Lennox, and was grandson of Sir J. Stewart of D. (d. 1429). Henry, Lord D. (1545-67), was a descendant.

Dartlipons, see GODMANCHESTER.

Darrang, dist. of India in the prov. of Assam, situated between the Brahmaputra and the Bhutan and the Dalpa Hills. The headquarters of the administration are at Tezpur. The prin. crop is rice. Pop. 337,000.

Dart, riv. of England, which rises near Cramere Pool, in the centre of Dartmoor. It is 36 m. long, 10 m. being tidal. At Totnes it widens into a broad estuary, and is navigable to and from Dartmouth.

Co. Mental Hospital has accommodation for 2161 patients, and 2000 beds are available in the hospitals of the Metropolitan Asylums Board. Pop. 28,800.

Dartmoor, plateau in the S.W. of Devonshire, England. Its length is about 23 m. and width 20 m. The mean altitude is 1500 ft. The higher parts are bleak, wild, and rugged, composed of masses of granite, the higher points of which are called tors, Yes Tor, 2028 ft., and High Willhays, 2039 ft., being the most lofty. The lowlands are well wooded and form a beautiful contrast with the bleak moorlands. In the centre of the moor lie the pools and morasses



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DARTMOOR: RIFON TOR AND MOORLAND ROAD FROM HAYTOR ROCKS

Dart (fish), see DACE.

D'Artagnan (hero in *The Three Musketeers*), see ARTAGNAN.

Dartford, mkt. tn. and par. of W. Kent, England. It is situated on the Darent, about 2 m. from its entrance into the Thames, and 16 m. E. of London. In 1355 Edward III. founded an Augustinian nunnery there, and in 1381 Wat Tyler's rebellion took place. The manufs. are machinery, gunpowder, and paper. In 1590 the process of rolling and slitting iron was first estab. in England here by a native of Brabant, and in the same reign paper-making was introduced by Sir John Spelman. Richard Trevethick, the inventor of the locomotive steam engine, d. and was buried here in 1833. The foundation stone of the Livingstone Hospital was laid by Sir H. M. Stanley, the African explorer, in 1894. There is a memorial in the central park to the martyrs burnt here in 1555. The London

which form the headwaters of the chief Devonshire streams. Of the royal forest which occupied the centre of D. before the Conquest, small oaks and undergrowth in rough tracts alone remain. The moor abounds in interesting prehistoric antiquities, such as avenues of large standing stone, sacred or sepulchral circles, dolmens, etc. Near Chagford may be found a fine example of a primitive vil. of rude granite blocks. Much of the scenery is exceedingly wild and beautiful, Lydford Gorge being famous. The great convict prison at Princetown was originally built for Fr. prisoners in 1809, and has been utilised for its present purpose since 1855. A good picture of the scenery, atmosphere, and life of D. may be obtained from many of Eden Phillpotts's novels. See S. Baring-Gould, *A Book of Dartmoor*, 1900.

Dartmouth, George Legge, Baron (1847-1891), Eng. admiral, the eldest son of Wm. Legge, earl of Dartmouth &c. 1609-

1670); he served in the navy during the Dutch war, 1665-67, and held many offices and commands in the navy and army. Entrusted by James II. with the prevention of the landing of William of Orange, he did nothing, the disaffection of the fleet being marked. He took the oath of allegiance, but was in 1691 arrested for treason and d. in the Tower before trial.

Dartmouth, seaport and municipal bor. in S. Devon, England, 8 m. S.W. of Torquay, and 30 m. S.W. of Exeter. The tn. is picturesquely situated on the terraces of a craggy hill, near the mouth of the Dart. Many of the streets are narrow, and include some well-preserved timbered houses. The castle, at the entrance to the harbour, dates from the reign of Henry VII., though the original castle was built in the time of Edward IV. D. is an important coaling station, and its spacious, land-locked harbour has made it a favourite resort of yachtsmen. It formerly had a considerable trade in Newfoundland fisheries, but its present trade is chiefly of a coasting character. The R.N. College (see NAVAL EDUCATION) is situated here. At D. Richard I. embarked with his crusaders for the Holy Land in 1190. Pop. 8000.

Dartmouth, tn. of Nova Scotia, Canada, with a mental hospital, sugar refinery, oil works, etc. It is a splendid drive thither from Halifax by the lakes. Pop. 8000.

Dartmouth College, institution for the higher education of men, founded, 1769, in Hanover, New Hampshire, U.S.A. It now contains a yearly average number of over 3000 students, the majority working for the regular college B.A. degree. There are also facilities for studying medicine. In 1928 the building of the Fisher Ames Baker Memorial Library, donated by George F. Baker of New York, was completed at a cost of over \$1,000,000; in 1929 the Carpenter Art Building, a natural science laboratory, was also added. Admission to the college is by selection, special consideration being given to set character and qualities of leadership as well as scholarship.

Darton, par. and tn. in W. Riding, Yorkshire, England. It is situated on the Derne, 2½ m. N.W. of Barnsley. It has coal-mines; manufs. screws and nails. Pop. 13,400.

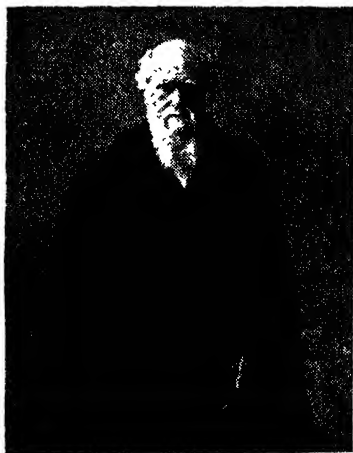
Daru, Pierre Antoine Noël Bruno, Count (1767-1829), Fr. statesman and soldier, b. at Montpellier; educated at the military school at Tournon; was commissary to the revolutionary army, 1793; was imprisoned on the charge of friendliness to the royalists, but was released on the death of Robespierre. He then rose rapidly in the service, and won great repute for his organising powers. In 1799 he was employed as chief commissary to the army in Italy by Napoleon, and continued in that service, being one of the most capable administrators in the army. He drafted the treaty of Pressburg after the battle of Austerlitz. He was made secretary of state, 1811, and retired from public life on Napoleon's abdication in 1814. After 1815 he was made a member of the chamber of peers.

Darvel, burgh and tn. of Ayrshire, Scotland, situated on the Irvine, 10 m. from Kilmarnock. Carpets and lace are manufactured. Pop. 4000.

Darwen, municipal bor. of Lancashire, England, 20 m. N.W. of Manchester by rail, situated on the D. There are collieries and stone quarries; the tn. is a centre of the cotton trade, and has blast furnaces, paper mills, and fire-clay works. Pop. 32,200.

Darwin, Charles Robert (1809-82), naturalist, grandson of Erasmus D. (q.v.), and son of Robert Waring D. and Susannah, daughter of Josiah Wedgwood of pottery fame, was b. at Shrewsbury and d. at Down; buried at Westminster Abbey. He early evinced a passion for collecting, and a taste for chem. After leaving Shrewsbury School he went to Edinburgh, and later to Cambridge, Univ. His studies appear to have been comprehensive, but they in no way inclined him, as was intended, to follow his father's profession of medicine. The subjects that fascinated him were zoology and botany, and his active mind and abundant energy manifested itself in a love of sport and the collecting of beetles. The seal of his future career was set on the invitation, through the influence of his close friend Henslow, botany prof. of Cambridge, to join H.M.S. *Beagle* as naturalist on her celebrated voyage in 1831 to S. America and the Pacific. The immediate results of his assiduity on this scientific mission are to be found in his first pub. work, *Journal of Researches into the Natural History and Geology of the Countries visited during the Voyage of H.M.S. 'Beagle'* (1839). From the time of his return, in 1836, he settled down in England for the rest of his life, marrying his cousin, Emma Wedgwood, in 1839. With the aid of his collections from the voyage and a Treasury grant, he then worked on his second book, *The Zoology of the Voyage of H.M.S. 'Beagle'* (1839-42). From this point the preparation of his great constructive theories begins. The industry he displayed in spite of poor health was remarkable. In 1859 his epoch-making *On the Origin of Species by means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* was pub., expounding the doctrine now known as Darwinism (q.v.). His later scientific speculations are in the main extensions of this theory. A curious feature in connection with the *Origin of Species* is the fact that its thesis was in its essentials formulated independently by his great friend, Prof. Alfred Russel Wallace (q.v.), while abroad, and who submitted his paper on the subject to D. The total absence of jealousy on the part of the two naturalists, and the harmony in which they severally conducted their researches, forms one of the romances of Eng. scientific progress. In 1871 he pub. *The Descent of Man, and Selection in Relation to Sex*, which in some respects excited still more attention than the earlier and greater work, by reason of its searching inquiry into the ancestry of man. In this connection it is curious to note that

the prejudice excited in the vulgar mind by D.'s speculations was due in great measure to the error of supposing that he advanced the theory of man's descent from the ape (see under DARWINISM). The theory of sexual selection as a process in the evolution of man, briefly adumbrated in the *Origin of Species*, was elaborated in *The Descent of Man*, but at the present day it has been very generally discredited. As a man D. possessed a strong frame, was thin and tall, and walked with a slight stoop, but in constitution he was far from robust, ultimately succumbing to some affection of the heart. In character he appears to



N.P.G.

CHARLES DARWIN

The painting by the Hon. John Collier.

have been a man of no pretensions and of considerable personal charm and warm sympathetic geniality. A full list of his works is to be found in the works of his son, Sir Francis D. His botanical works include *On the Various Contrivances by which British and Foreign Orchids are fertilised by Insects* (1862); *Insectivorous Plants* (1875); *The Effects of Cross and Self-fertilisation in the Vegetable Kingdom* (1876); *The Different Forms of Flowers or Plants of the Same Species* (1877); and *The Power of Movement in Plants* (1880), which was a corollary of his *The Movements and Habits of Climbing Plants* (1865). Among his zoological works are, besides the works on the voyage of the *Beagle* (the most popular of which is *A Naturalist's Voyage*, pub. in 1889), *A Monograph on the Cirripedia* (1851-53); *Fossil-Balanidae and Verrucidae* (1854); and *The Formation of Vegetable Mould through the Action of Worms* (1881). His works on geology were numerous, and include *The Structure and Distribution of*

Coral Reefs (1842); *Geological Observations on the Volcanic Islands visited during the Voyage of H.M.S. 'Beagle'* (1844); and *Geological Observations in South America* (1846), all of them included in the general work entitled *Geology of the Voyage of the 'Beagle.'* Miscellaneous works include *The Variation of Plants and Animals under Domestication* (1868) and *The Expression of the Emotions in Man and Animals* (1872). See Sir F. Darwin (ed.), *Life and Letters of Charles Darwin, including an Autobiographical Chapter*, 1887, and *Autobiography of Charles Darwin*, 1929; G. A. Adler, *Charles Darwin*, 1909; A. C. Seward, *Darwin and Modern Science*, 1909; and L. Huxley, *Charles Darwin*, 1921.

Darwin, Erasmus (1731-1802), Eng. scientific writer, poet, and physician, b. at Elton, near Newark, Dec. 12. Educated at St. John's College, Cambridge, and at Edinburgh Univ., where he took his degree in medicine. He settled as a doctor at Lichfield, and won a high professional reputation, so much so that he was offered, but declined, the appointment of physician to George III. He is said to have been an athletic man and of temperate habits, the advantage of which he seems to have omitted no opportunity of pointing out to those over whom his influence extended, and in this respect he rendered good service to the poor of Lichfield. His writings were varied, yet essentially those of a man of scientific mind, which bias robs his verse of the true poetic quality, full though its subject matter may be of sylphs, nereids of the grot, and gnomes, and dignified with the Spenserian formula of personification. Posterity has largely forgotten his work, yet his *Zoonomia or the Laws of Organic Life* (1794-96), a pathological work, together with a treatise on generation, is significant in that, according to his far more famous grandson, Charles D., he anticipated the views of Lamarck. But his literary reputation rests mainly on his poem *The Botanic Garden* (1789, 1791), a long poem in decasyllabic rhymed couplets, instinct with scientific interest in nature, but, if polished, artificial, stilted, and pompous. In the second part, entitled *The Loves of the Plants*, he follows the system of Linnaeus by personifying each plant; and he appends botanical comments in which the praise of scientific men recurs. In 1800 appeared his *Phytologia; or the Philosophy of Agriculture and Gardening*, a lengthy work in one vol. All his works excited considerable attention, and by some were extravagantly praised, by others as unreasonably disparaged, but at the present day they are but little read or consulted, though they scarcely deserve to sink into complete oblivion; for they reveal a writer of a highly original turn of mind, well versed in physics, with a rare aptitude for seizing and illustrating natural analogies. But he was over-fond of tracing false analogies, and showed the faults of a credulous collector and of a fanciful reasoner. As a poet he lacked inspiration. He was a free-thinker and, as implied above, an enthusiastic botanist, possessing an eight-

acre botanical garden. Some of his ideas on evolution foreshadow the work of his grandson (see DARWINISM). His first wife d.; and to please his second he removed to Derby. By his first wife he was the grandfather of Charles D., by his second of Francis Galton. He d. suddenly of heart disease at Beardsall Priory. See S. Butler, *Evolution Old and New*, 1879; C. Darwin, *Life of Erasmus Darwin*, 1887; J. Huxley, *Darwin*, 1921, 1948; H. Pearson, *Doctor Darwin*, 1930; and J. V. Logan, *The Poetry and Aesthetics of Erasmus Darwin*, 1938.

Darwin, Sir Francis (1848-1925), Eng. botanist, b. at Down, Kent, the third son of Charles D. He was in intimate association with his father's work till the latter's death; was editor of his father's biography. In 1884 appointed univ. lecturer and reader in botany to the univ. of Cambridge; president of the Brit. Association, 1908, at Dublin. Pub. *Practical Physiology of Plants* (with E. H. Acton, 1894) and *The Elements of Botany* (1895). His admirable *Life and Letters of Charles Darwin* (1887) was followed by *More Letters* (1903). In 1917 appeared *Diversions of a Scientist*; in 1920 *Stray Papers of a Scientist*. He is chiefly remembered by botanical students at the present day for the type of potometer devised by him to measure rate of water intake by plants. He was also a musician and played the bassoon at the Cambridge Musical Club.

Darwin, Sir George Howard (1845-1912), Eng. physicist and mathematician, b. at Down, Kent, the second son of Charles D. After a distinguished career at Cambridge Univ. he went to the Bar, but returned to Cambridge as Plumian prof. of astronomy and experimental philosophy, 1883. He was probably the greatest worker in applied mathematics since Lord Kelvin. His chief work was concerned with the mathematical problem of three bodies—with the attraction of rotating fluid bodies, with the theory of the tides and the estimate of their effects during the separation of the moon from the earth, and the pressure of loose earth. In what may be termed the historical dept. of astronomy, D. was chiefly concerned with the genesis of the moon from the earth. He was president of the Brit. Association in 1905 in S. Africa, Copley medallist, 1911. His pub. work is mainly to be found in *Scientific Papers* (Cambridge, 1898). He pub. a popular summary of his work on the tides, *The Tides and Kindred Phenomena of the Solar System* (1898).

Darwin, Mount, situated near the S. coast of S. Is., Tierra del Fuego, and attains a height of about 7000 ft. D. Sound is on the S.W. of King Charles S. Land, Tierra del Fuego.

Darwin, Port, seaport of N. Ter., Australia, with a fine safe harbour and pearl fisheries. It is also an airport. Pop. 1100.

Darwinism, or the **Darwinian Theory**, theory popularly but erroneously identified with the dawn of the method of evolution, especially as applied to the genesis of the human species. The D. T.

as expounded in Charles Darwin's *Origin of Species*, accepting the preconceived notion of evolution as such, proceeded, by a brilliant extension of the Lamarckian opinion that all species, including man, are descended from other species, to enunciate by the light of a mass of biological facts the law of natural selection, and indirectly to refute the traditional belief in the immutability of species and the expression of that belief in the current theological conception of a special or separate creation by direct divine interposition. D., or more popularly, the doctrine of the survival of the fittest through a process of natural selection, is primarily concerned with the fact of the existence of variations in species, as explanatory of the hitherto incomprehensible and marvellous co-adaptation in nature of organic beings. Briefly D. or the D. T. is this: There is no independent creation of organic beings from an archetype, their embryological relations, mutual affinities, and geographical distribution being opposed to any such hypothesis; an investigation of plants and animals shows that man, by a process of artificial selection, conscious or unconscious, has been able to produce for his own ends numerous variations of species; applying this principle of artificial selection of species under domestication to organic beings in a state of nature, the old distinctions between species and varieties break down; in nature dominant or flourishing species produced the greatest number of varieties, and the slight variations of all parts of an organism furnished in nature itself the material for selection. Those organic beings that vary, however slightly, in a manner profitable to themselves have the best chance of surviving, and therefore of being naturally selected. Natural selection inevitably causes much extinction of the less improved forms of life, and from a consideration of the high geometrical ratio of increase of organic beings to the means of subsistence a struggle for existence must follow, and that struggle is most severe between varieties and individuals of the same species. Hence the process of natural selection leads to the survival of the fittest, or the preservation of favourable individual differences and variations, and the corresponding destruction of those which are injurious.

The Origin of Species also briefly outlines the process of sexual selection, or 'the struggle between the individuals of one sex, generally the males, for the possession of the other sex.' The hypothesis of sexual selection is used by Darwin to explain peculiarities appearing in one sex and becoming hereditarily attached to that sex whether those peculiarities appear under domestication or in nature. *The Descent of Man, and Selection in Relation to Sex* is really an application of the principles expounded in *The Origin of Species* to the human species. In this work Darwin collects evidence to show the descent of man from some lower form, and from the evidence provided by homologous structures and embryological

development infers that man and anthropomorphous apes had a common ancestor. The theory of sexual selection has been very generally abandoned at the present day; according to this theory differences in the secondary sexual characters of male and female (e.g. in the plumage of birds) can be explained in terms of selection value during breeding: those male birds with the most brilliant colouring would be selected by the females, so that the colours would be perpetuated and would become more extensive in succeeding generations. Darwin accepted the theory of evolution apart from the existence of its motive cause. But the proof of the existence in nature of the material for variations of species is believed by many to supply a motive cause in itself. There can be no doubt of the almost universal acceptance of D., notwithstanding the prejudice roused at its promulgation, chiefly in religious quarters. The value of the theory in relation to evolution is shown by its application to sociology, psychology, and the growth of political institutions. In the subsequent application of the method of evolution to other sciences, the theory of natural selection not infrequently found less favour than that of Lamarck, who early laid emphasis on the effect of use and disuse or habit in species formation and its hereditary transmission. D. taught that habit, though it played a considerable part in some cases in the modification of the constitution and structure of species, has been in its effects largely combined with and overmastered by the natural selection of innate variations, and the interpretation of D. as establishing the *creation* of new species from the accumulative power of natural selection has since the controversy over hereditary transmission found very general acceptance. One of the subtlest criticisms of D. was that of T. H. Huxley, who, while championing the theory against dogmatism, himself advanced the objection that man, by artificial selection, could not induce varieties of a domesticated animal which were unable to breed with one another, and that until he could do so, variations were not satisfactorily accounted for by natural selection. The difficulty offered by the existence of unity of type, or the constant fundamental agreement in structure in organic beings of the same class, is met by Darwin himself, who thinks the explanation of the unity lies in the fact of unity of descent. In the field of philosophical speculation, D. would seem to be inconsistent with any teleological conception of the universe, or the theory of a world created out of chaos by the intervention of a Divine Being proceeding on the lines of a coherent and beneficial plan. It substitutes a purely mechanical conception of organic development based on the mere instinct of self-preservation, which is complete of itself except in so far as the spontaneity of the variations and mutual affinities of species is assumed so as to lead to the inference of some innate organising principle. D. is not avowedly concerned with the absolute origin of life

or, as was the teaching of Buffon, with the evolution of the primordial germ. Wallace, who worked out the theory of natural selection independently of Darwin, sees in it no necessary inconsistency with teleology, and the existence throughout evolution of an upward guiding principle from without. It may not be impossible, too, to agree with some German philosophers who regard D. as inculcating a new determinism (q.v.), based on the relativity of all moral ideas in harmony with successive stages of social progress.

Nietzsche, too, criticises D. through a denial of the primary importance of the instinct of self-preservation, saying that 'psychologists should bethink themselves before putting down the instinct of self-preservation as the cardinal instinct of an organic being. A living thing seeks above all to discharge its strength—life itself is Will to Power; self-preservation is only one of the indirect and most frequent results thereof.' Huxley, however, acutely criticises the whole theory of evolution by pointing out that all the laws of physical evolution can never aid us in comprehending the origin of mind. Schaefer has put forward a materialistic theory, not entirely original, that life has originated by a process of evolution from non-living elements, and that we may eventually succeed in building up living protoplasm in the chemical laboratory. But he was careful to distinguish 'life' from 'soul,' and the genesis of the latter is as much as over in the region of the transcendental. It may be conceded, and from the most optimistic standpoint, that D. favours a love of the law of nature, not dissimilar from the Stoic conceptions, and replaces current religious emotions by a love of the æsthetic in nature, and a pantheistic conception founded on the belief of the essential identity of man and the external world. It is an axiom that Darwin's work brought about a revolution in human thought, so that, as Osborn says, 'Before and after Darwin' will always be the *ante et post urbem conditam* of biological hist., even though the evolutionary idea is so much older—for this idea goes back to the Greek philosophers, and Darwin himself, in the *The Origin of Species*, dealt quite fully with the views of his predecessors. Arising out of D. is the recognition of 'emergence' in organic evolution, or, in other words, the recognition of creativity in many of the steps in such evolution. Modern biologists, while accepting D. as a whole, concur in the view that there is no irrefutable evidence of the transmissibility of 'definite variations,' or changes in living creatures induced by peculiarities in environment. They accept Weismann's theory that these variations have a germinal origin and not an origin from without. Weismann asserts that the germplasm is continuous, that all reproductive cells are produced directly by other reproductive cells, and are not in any true sense the product of the complex organism which carries them, nourishes them, and allows them to multiply. Botanists, however, are not very enthusiastic about Weis-

mann's 'germplasm' theory; and while Darwin himself was prepared to take an ecological view of the evolutionary problem, the neo-Darwinians for the most part are not.

It does not appear that Darwin knew the work of Mendel (pub. in 1865); at all events he took no notice of it, and it was not taken up until the beginning of the present century, when it was more or less simultaneously rediscovered by De Vries, Correns, and Tschermak. Briefly the result of Mendel's work on the problem of inheritance in plants was to show that inherited characters are dependent on unit factors derived from both parents, which maintain their identity throughout the life of the plant, and separate only when the sex cells (gametes) are formed. Mendel brought to light facts which have been developed by the mutationist school—a mutation being a discontinuous variation, a more or less wide salutation or sport, which differs from the parent form in one or more well-marked characters. Darwin made many observations on such sports or mutations, but he objected to such 'sudden and considerable deviations of structure,' as material for evolution, because he was of the opinion that they would be swamped by inter-crossing; but the Mendelian discoveries have shown that this is not necessarily the case. See also BIOLOGY; EVOLUTION; MAN.

See C. Darwin, *On the Origin of Species by means of Natural Selection*, 1859, *The Variation of Plants and Animals under Domestication*, 1868, and *The Descent of Man, and Selection in Relation to Sex*, 1871; T. H. Huxley, *Man's Place in Nature*, 1863; A. R. Wallace, *Darwinism*, 1889; E. Haeckel, *Die Weltrütsel*, 1899 (Eng. trans., 1900); S. P. Cadman, *Charles Darwin and other English Thinkers, with Reference to their Religious and Ethical Value*, 1911; Sir J. A. Thomson, 'Influence of Darwinism on Thought and Life,' in *Science and Civilization*, 1926; J. B. S. Haldane, *The Causes of Evolution*, 1932; J. W. Bawa, *Human Ecology*, 1935; J. Huxley, *Evolution: the Modern Synthesis*, 1942; and R. E. D. Clark, *Darwin: Before and After*, 1948.

Das, Chitta Ranjan (1870–1925), Indian Swarajist leader, b. in Calcutta, son of Bhubon Mohan D., a solicitor. Called to the Bar at the Middle Temple, 1892. Returned to India, 1893, and practised at the Calcutta Bar until 1921. He first entered the Indian Congress in 1906, and was elected its president in 1921; but, before the Congress met at Ahmedabad, he was arrested for unlawfully issuing an appeal for 'volunteers,' and he served a sentence of six months in prison. He was president next year, at Gaya, and in Dec. 1923 he entered Bengal Legislative Council. In 1924 he was elected first mayor of Calcutta.

Dash, Comtesse de, the pseudonym of Gabrielle Anne de Cisternes de Courtières, Marquise de Polignac de Saint-Mars (1804–1872), Fr. novelist, b. at Poitiers. She was a woman in fashionable society and her numerous novels deal principally with love and intrigue. She is said to have written five or six vols. in a single year,

and the list of her novels is accordingly long. *Les Galanteries de la cour de Louis XV.*, *Le Salon du diable*, *Les Bals masqués* (1882), and *Le jeu de la reine* may be mentioned.

Dashkov, or Dashkova, Caterina Romanovna Vorontsov, Princess (1744–1810), Russian authoress, b. at St. Petersburg, daughter of Count Roman Vorontsov, married at fifteen to Prince Mikhail D. Her elder sister Elizabeth was mistress of the Emperor Peter III., and in 1762 the princess took a leading part in placing Catherine II. on the throne. Her scientific and literary abilities gained her an entrance to all the learned societies of Europe. In 1782 she was made director of the St. Petersburg Academy of Arts and Sciences, and in 1784 first president of the Russian Academy. In 1796 the Emperor Paul deprived her of her offices, and she retired to her estates near Moscow. See her *Autobiography*, 1810, and G. Schlegel-berger, *Die Fürstin Dashkova*, 1935.

Dashkova, tn. of White Russia, on the Dnieper. The Fr. were defeated here in 1812 by the Russians.

Dashwood, Sir Francis, Bart., fifteenth Baron Le Despencer (1708–81), chancellor of the exchequer, at a very early age became notorious for riotous living in an age when much liberty of action was allowed to a 'buck.' After making the grand tour, during the course of which he indulged in many mad pranks, he was given a minor appointment in the household of Frederick, Prince of Wales. He presently became president of the Dilettante Society, and later founded the infamous brotherhood of the Monks of Medmenham, among the members of which were Bute, Sandwich, Wilkes, Thomas Potter, and Paul Whitehead. Entering Parliament in 1741 as an opponent of Wilkes, he was twenty-one years later appointed by Bute chancellor of the exchequer, but his general incompetence and his ignorance of financial affairs were so great that his tenure of office did not survive Bute's fall in the spring of 1763. In that year the abeyance into which the barony of Le Despencer had fallen was terminated in his favour, and he became premier baron of England. In the House of Lords he, on one occasion, unconsciously created much merriment by the sincerity with which he, the most dissolute of men, denounced Wilkes for printing the *Essay on Women*. In spite of his incapacity as a statesman, Chatham made him joint postmaster-general in 1766, which office he held until his death.

Dass, Petter (1647–1708), Norwegian poet, b. at Nord Herø, Norway. He was the son of a Scottish merchant, Peter Dundas, and was ordained priest in 1672, and after being for some years chaplain at Nesne, was presented with the living of Alstahoug. His wonderful power of description in verse has led him to be styled the father of modern Norwegian poetry and his most famous poem, *Nordlands Trompet*, is still often quoted by the priests and peasants in the N. of Norway. The collected writings of D. were ed. by Dr. A. E. Eriksen (1875–77).

Dasyurus, genus of carnivorous marsupials placed near to the bandicoot and opossum genera; the species are called dasyures or native cats. They inhabit the Australian region, are nocturnal in habit, and extremely ferocious. The body of the *D.* is viverrine in form, dark brown and white in colour, and a hallux is sometimes present.

Dattahieh, see DAKAHLEH.

Datames, distinguished Persian general, a Carian by birth, was satrap of Cilicia under Artaxerxes II. (Mnemon), but revolted against the king. He defeated the generals who were sent against him, but was at length assassinated, 362 B.C. Cornelius Nepos, who wrote his life, calls him the bravest and most able of all barbarian generals, except Hamulcar and Hannibal.

Date. The *D.* palm, or *Phoenix dactylifera*, is a tree of the natural order Palmæ, cultivated chiefly in warm countries for its fruit. The stem is generally 20 to 30 ft. high, and is crowned at the top by leaves which often split and become pinnate. The inflorescence is enveloped in a large spathe when young. The dioecious flowers are in clusters. The fruit contains a stone which cases the embryo in a mass of hard endosperm. The male and female flowers are borne on separate trees, and as it is impossible to distinguish them before the flowers appear they have to be artificially fertilised. No difficulty is found in the cultivation of the *D.* palm, plenty of sun, light, and sandy rather than rich soil, and a certain amount of water, are the only conditions required. They commence to bear fruit at eight years old, and continue to do so for more than a century. The *D.* is a very important article of food in Arabia, where other foods are hard to obtain. It is eaten raw, roasted, or ground and pressed into cakes. The leaves are used for matting, and the wood for any kind of carpentry in which a light species only is required; the stem-fibre is made into ropes. It is largely exported. It is mentioned in the earliest records of the Assyrians and Gks., and the Jews also used it as a symbol of victory.

Date Plum, name given to sev. species of *Diospyros* in the order Ebenaceæ. *D. lotus*, the common *D. P.*, or European lotus, has long shining leaves, white flowers tinged with pink, and fruit almost like a cherry. It is really a tropical tree, but has been naturalised and is cultivated in the S. of England, where the fruit is used for preserves. *D. Kaki* is the Chinese *D. P.*, or persimmon.

Datia, **Ditteah**, or **Datiya**, native state of Bundelkhand, central India. The tn. of *D.* is 15 m. N.W. of Jhansi, and 125 m. S.E. of Agra. It is almost entirely built of stone, and is surrounded by walls. Pop. of state 180,000, tn. 25,000.

Datis, Indian general who, with Artaphernes, commanded the army of Darius in the expedition he sent against Athens, 490 B.C. He succeeded in capturing Eretria, but was defeated by the Athenians under Miltiades at the famous battle of Marathon, and had to abandon any further attempt against Greece.

Datolite, mineral composed of basic calcium and boron orthosilicate, $\text{Ca}(\text{BOH})\text{SiO}_3$. It is generally found as glassy crystals, or as masses with a granular to compact texture. It is colourless or with a slight tinge of green and may be transparent or opaque. Hardness, 5-5½; sp. gr., 3.0. It is found in Norway, Scotland, the U.S.A., and Tasmania.

Datum, or **Datus**, anct. Thracian tn., on the Strymonic gulf, subject to Macedonia, with gold mines in Mt. Pangæus, in the neighbourhood, whence the old Gk. proverb, a 'Datum of good things.'

Datura (Arab *talorah*), genus of Solanaceæ. *D. Stramonium* is the horn apple. The plant is found on dunghills and in waste places. It is a violent narcotic and is employed in convulsions and tic douloureux. When smoked it palliates the symptoms in asthma. *D. Tabula* and *Metel* are similarly used. From the species *D. sanguinea* the Peruvians make an intoxicant.

Daubenton, Louis Jean Marie (1716-99), Fr. naturalist. After assisting Buffon at the Jardin du Roi, he became curator and demonstrator in the Cabinet of Natural History, and helped to compile the *Histoire Naturelle*. During the revolution he held the chairs of natural hist. and mineralogy. Elected to the Senate, he was seized with apoplexy at his first attendance, and *d.* shortly after.

Daubeny, Charles Giles Bridle (1795-1867), Eng. chemist, botanist, and geologist. He was prof. of chem., Oxford, 1822; of botany, 1833, and represented the univs. at the first meeting of the Brit. Association, 1831. He travelled largely and made important studies of volcanic action. His numerous works include *Active and Extinct Volcanoes* (1848); *Introduction to the Atomic Theory* (1831); and *Trees and Shrubs of the Ancients* (1865).

D'Aubignac, François Hédelin, Abbé, see AUBIGNAC.

D'Aubigné Française, see MAINTENON, MARQUISE DE.

D'Aubigné, Jean Henri Merle and Théodore Agrippa, see AUBIGNÉ.

Daubigny, Charles François (1817-78), Fr. painter. After two years' study in Italy he returned to Paris, and his landscapes of the Barbizon school were recognised as masterly. His 'Look at Optovoz' was bought by the state, 1855, and he was made a chevalier of the Legion of Honour, 1859. His finest landscapes, usually of riv. scenes, were painted between 1864 and 1874. His 'Spring-time' is in the Louvre. With other painters of his school his works fetch very high prices in art sales at the present day.

D'Aubonne, Baron, see TAVERNIER, JEAN BAPTISTE.

D'Aubusson, Pierre, see AUBUSSON.

Daucus, a genus of Umbelliferae, is cosmopolitan but for Australia, and in Britain is represented by *D. carota*, the carrot. In its wild state the root of the plant is hard, wiry, and juiceless, but when cultivated it becomes succulent and nutritious.

Daudet, Alphonse (1840-97), Fr. novelist, b. at Nîmes. His father, Vincent D., was a silk manufacturer. The family suffered many misfortunes, and D.'s early years were not happy owing to the poverty following on the failure of his father's business. In 1856 he went to Alais as an usher to a boys' school, but the life was impossible, and in 1857 he went to Paris to live with his brother Ernest, who was a journalist. He was some time throwing off the depression of his misery as an usher, and the memory of his wretched experiences haunted him, as it has many who, like him, were made for finer things. In 1858 he pub. his first volume of verse, *Les Amoureuses*, and at once obtained employment on *Le Figaro*. Through this post he was made secretary to de Morny,



ALPHONSE DAUDET

with whom he remained till the latter's death in 1865. During 1866 he pub. *Lettres de mon Moulin*, and in 1868 *Le Petit Chose*, which contained memories of his early life. He collaborated with others for the stage, and wrote *L'Arlesienne* (1872). In the same year he pub. the first of the immortal *Tartarin*, *Les Aventures prodigieuses de Tartarin de Tarascon*, in which he satirised, or rather burlesqued, his fellow Provençals. It is still read in nearly every language of Europe. In 1874 he wrote his most masterly work, *Fromont Jeune et Risler aîné*, which struck a new note in Fr. literature, the two successive works showing that he could move to tears and laughter. The story of an illegitimate child, *Jack*, followed in 1876. His power of making his characters live is clearly shown in this. He has been charged with being an imitator of Dickens, but he was in himself a master of the new naturalist school of fiction, and always went to real life for his characters and situations. In fact, the more justifiable criticism is that he was prone to make his characters transcripts of real personages too easily identified. *Le Nabab* (1877), *Les Rois en Exil* (1879), and *Numa Roumestan* (1880)

are notorious examples; in the last Gambetta is obviously portrayed. *L'Immortel* (1888) contained a savage satire on the Fr. Academy, to which he was never elected. His other novels include *Sapho* (1884) and the conclusions of *Tartarin sur les Alpes* and *Tartarin Voyageur* (1885). His *Trente ans de Paris* (1887) and *Souvenirs d'un homme de lettres* (1888) gave a vivid picture of his literary and social life. He wrote some charming children's stories, the best known being *La belle Nivernaise* (1886). He was a member of the literary circle of Zola, Flaubert, and the De Goncourts, Edmond de Goncourt dying in his house. His wife, Julia Allard (see below), shared his literary labours, and their marriage was extremely happy. See F. L. M. Daudet, *Mon frère et moi*, 1882; R. H. Sherard, *Alphonse Daudet*, 1894; L. Daudet, *Alphonse Daudet*, 1898. *Quand vivait mon père*, 1940, and (ed.) *Lettres familiales*, 1944; F. Delattre, 'Daudet et l'Angleterre' in *Dickens et la France*, 1927; and Y. Martinet, *Alphonse Daudet: sa vie et son œuvre*, 1940. See also A. Symons, *Studies in Prose and Verse*, 1904.

Daudet, Ernest Louis Marie (1837-1921), Fr. author, b. at Nîmes; an elder brother of Alphonse D. Well known as a writer of novels and as a political journalist. He is the author of *La Terreur blanche* (1878) and *Souvenirs de la Présidence du Maréchal MacMahon* (1880), historical works of considerable interest, and he wrote a biography of the Princess Lievin (the Princesse de Cadignan of Balzac), entitled *Vie d'une ambassadrice* (1903); also *Soixante années du règne des Romanoff* (1919).

Daudet, Julie Rosalie, née Allard, Madame Alphonse (b. 1847), Fr. authoress, wife of Alphonse D., the novelist. She wrote, under the pseudonym Karl Steen, sev. literary sketches and studies, and in her own name *Impressions de nature et d'art* (1879), *L'Enfance d'une Parisienne* (1888), and *Journal de famille et de guerre* (1920).

Daudet, Léon (1868-1942), Fr. author, the son of Alphonse D. He wrote sev. satires, notably one upon doctors, entitled *Les Moricotes* (1894), and another upon republican politicians, entitled *Les Parlementaires* (1901). His works also include *L'Astre noir* (1893); *Le Voyage de Shakespeare* (1896); *Les Idées en Marche* (1896); *Suzanne* (1897); *Sebastian Gouvé* (1899); *Les Deux Etranges* (1900); *Souvenirs des milieux littéraires, politiques, artistiques, et médicaux* (1914-21); *Le Stupide XIX^e Siècle* (1922); *Panorama de la III^e république* (1936); and sev. books about his father, Alphonse D. (q.v.).

Daudin, François Marie (1774-1804), Fr. naturalist, b. at Paris. He wrote many books on zoology, the best known being a work entitled *Histoire naturelle générale et particulière des reptiles* (1802-3), a book of considerable value to herpetologists, as it describes many generic and specific forms for the first time.

Daudnagar, tn of Bihar, India, situated on the Son, in the dist. of Gaya, 90 m. S.W. of Patna. There are manufs. of

cotton and woollen goods, and a considerable riv. trade is carried on. Pop. 10,000.

Daugavpils, formerly **Dvinsk** (anc. **Dunaburg**), tn. of Latvia, cap. of the prov. of Latgala, on the **Dvina**, with trade in flax, hemp, and wood. There was much fighting here between the Gers. and Russians in Sept. 1915. Pop. 41,000.

Dauglish, John (1824-66), Eng. chemist (M.D. 1855), b. in London. He invented a process for the manuf. of aerated bread, which was brought into operation in Great Britain in 1859. Carbonic acid gas was evolved in a generating vessel by the action of sulphuric acid on chalk, and after being purified was forced at high pressure into water which was then used with the flour to make the dough. The great object was to lessen the risks incurred during the ordinary process of fermentation by a variable temp., and to ensure certain and uniform results.

Dauin, small tn. situated on the is. of Negros, in the Philippine Archipelago. It was formerly called **Buglas Is.** Pop. 8000.

Daulatabad, **Dowletabad**, or **Deogire**, fort. tn. of India, in Hyderabad, 10 m. N.W. of Aurangabad. The fortress is placed 300 ft. high upon a perpendicular rock, and is apparently inaccessible, the means of reaching the top being through a subterranean passage in the rock. In spite of its position the fort has been captured many times. In the vicinity are cave temples.

Daulis, or **Daulia**, anc. tn. in Phocis, situated on a lofty hill, celebrated in mythology as the residence of the Thracian king Tereus, and as the scene of the tragic story of Philomela and Procne. Hence **Daulias** is the surname both of Procne and Philomela.

D'Aulnoy, Marie Catherine Baronne, see **AULNOY**.

D'Aumale, Counts and Dukes, see **AUMALE**.

Daumat, Jean, see **DOMAT**.

Daumier, Honoré (1808-79), Fr. caricaturist and painter, b. at Marseilles. He joined the staff of *La Caricature*, where his scathing caricatures attracted attention; one of the king, Louis Philippe, led to his imprisonment (1833). He then drew for *Charivari*, his social caricatures making artist and paper famous. He was also a serious painter of high rank, whose pictures are only now attracting the attention they deserve. He became totally blind. See lives by Arsène Alexandre, 1888, and E. Klossowski, 1908; and L. Deltail, *Honoré Daumier, Description de l'œuvre graphique*, 1926-31.

Daun, Leopold Josef Maria, Count von, Prince of Thiano (1705-66), Austrian field marshal, b. in Vienna. He was made a colonel during the war of the Polish Succession (1734-35), general in the war against the Turks (1737-39), and field marshal in the war of the Austrian Succession. His cautious and sometimes over-prudent generalship was frequently criticised.

Daunii, anc. name for the inhab. of Daunia, which was a co. of Italy in the N. of Apulia. The name is derived from

Daunus, an Illyrian chief who conquered it. It now forms a part of the Neapolitan prov. of Terra di Bari.

Dauphin, title formerly borne by the eldest son of the king of France, abolished after the revolution of 1830. The childless Comte de Vienne Dauphiné first gave the property and title to Philip VI's grandson.

Dauphiné, one of the old provs. of France, on the S.E. frontier between Provence and Savoy, and now comprising the depts. of Drôme, Hautes-Alpes, and Isère. Its cap. was Grenoble. We first hear of it in the possession of the Allobroges, Catuiges, and various Celtic tribes, and then it was taken into the Rom. Empire. Later it became part of the kingdom of Burgundy, and thence passed into the possession of the Franks. The Carolingian empire was split up and redistributed, and D. was taken into the second Burgundian empire of Arles. From the ninth to the twelfth centuries it changed its entity, being divided into various principalities. The Burgundian succession failed, and it was willed to the Ger. emperor, in whose possession it remained till 1343, when it was given back to France. In support of political freedom a convocation was held at Vizelle in 1778 to protest against the dissolution of the prov. Parliament. The D. Alps form the N. part of the W. Alpine system of Europe, the highest summits being Les Ecrins (13,462 ft.) in the dept. of Hautes-Alpes, and the Aiguille du Midi (13,075 ft.) in Isère.

Dauphinite, see **ANATASE**.

Daurat, Jean (1508-88), Fr. poet and scholar, b. at Limoges. His original name was Dinemandy. From working as a page in the household of Francis I., he became a learned classical scholar and director of the Collège de Croqueret. Here he founded the famous society of young poets, the *Picéade*, so called after the group of seven Gk. poets of Alexandria. The group consisted of Balf, Belleau, Pontus de Tyard, and the more famous Ronsard and Joachim du Bellay. Etienne Jodelle was attached later. In 1556 D. became prof. of Gk. at the Collège Royal.

Dauria, see **TRANSBAIKALIA**.

Davanziati, Chiaro (c. 1230-78), It. lyrical poet, b. at Florence. He commenced by writing lyrics in the style of the Provençals and Sicilians, but later he became a follower of Guittone of Arezzo. D'Ancon's *Antiche Rime* (1875-88) includes all his best work.

Davao, prov. in S.E. Mindanao, Philippine Is., containing the best hemp land in the Is. Of the 105,000 inhab. more than half are pagans. Their women weave excellent cloth, and the men make metal articles. The cap. is **Davao**. Pop. 103,100.

Davenant, or **D'Avenant**, Charles (1656-1714), Eng. writer on political economy, eldest son of Sir Wm. D., the poet. He practised as a lawyer at doctor's commons, was commissioner of excise, 1683-89, and inspector-general of customs, 1705-14. He was secretary to the commission which settled the union

with Scotland. As an economist he at first showed some free-trade tendencies, but later adopted the orthodox mercantile theory. A complete ed. of his numerous pamphlets and works was pub. in 1771, ed. by Sir C. Whitworth.

Abbey. See J. Maidment and W. H. Logan (ed.), *The Dramatic Works of Sir William D'Avenant, with Prefatory Memoir and Notes*, 1872-74.

Davenport, Charles Benedict (1866-1944), Amer. biologist at Harvard Univ.



B.B.C.

DAVENTRY TRANSMITTING STATION

Davenant, or D'Avenant, Sir William (1606-66), Eng. poet and dramatist, b. at Oxford, son of the proprietor of the Crown Inn. The story that Shakespeare was his real father was fostered by D. himself, but there is no certainty about it. At first attached as page to various noble households, the murder of his patron, Lord Brooke, in 1628, left him without means, and he turned to the stage. He wrote the words for some masques of Inigo Jones, such as the *Temple of Love* (1634); his earlier plays were *The Tragedy of Albovine*, *King of the Lombards* (1629) and *The Cruell Brother* (1630). His best play, a comedy, *The Wills*, was produced in 1636. In 1637 he succeeded Ben Jonson as poet laureate. He was an ardent royalist, and was knighted for bravery at the siege of Gloucester, 1643. He was captured on a mission to Virginia to establish a colony, 1650, and imprisoned, but was released through the good offices of Milton, whose life, it is said, he saved after the Restoration. In the reign of Charles II. he took a prominent part in the development of the theatre, especially in the matter of elaborate scenery and stage effects, at his theatre the Duke's in Lincoln's Inn Fields. His numerous plays and adaptations were worthless, and his great epic, *Gondibert* (1651), is dull, except for some brilliant and quotable passages. His shorter lyrical poems, with the title *Madagascar* (1638), contain some verses that still live. In 1656 he produced the first opera in England with Mrs. Coleman, the first actress introduced on to the Eng. stage. He was buried in Westminster

He held the position of instructor of zoology from 1893 to 1899, and was subsequently assistant prof. of zoology at Chicago Univ. In 1904 he became director of the station for experimental evolution of the Carnegie Institution, and from 1898 to 1921 he was director of the Marine Biological Laboratory of the Brooklyn Institute. He made valuable contributions to the study of heredity in man and in animals. His chief publs. are *Experimental Morphology* (1897-99); *Eugenics* (1910); *Heredity in Relation to Eugenics* (1911); *Heredity of Skin Color in Negro-White Crosses* (1913); *The Feebly Inhibited—Nomadism and Temperament* (1915); *Naval Officers—their Development and Heredity* (1919); *Body Build and its Inheritance* (1923). He collaborated with A. G. Love in exhaustive inquiries into the physical fitness of men drafted for the First World War, and pub. in this connection his *Defects Found in Drafted Men* (1920).

Davenport, John (1597-1670), Puritan divine, b. at Coventry, England, educated at Oxford. Was for fourteen years a minister in London, and then fled to Holland under Laud's persecution. Went to America, and was one of the founders of the New Haven Colony, Connecticut, his co-leader being Theophilus Eaton, who became first governor of the colony. D. became pastor of the New Haven Church. He opposed the Half-way Covenant, and pub. many theological works.

Davenport, tn., co. seat of Scott co., Iowa, U.S.A., situated on the Mississippi,

opposite Rock Is., with which it is joined by two bridges; it is connected by rail to the Chicago and N.W. railway. It was founded in 1835 by Col. George Daventry. Pop. 86,000. D. is sec of a Rom. Catholic and a Protestant episcopal bishopric, and is an important centre by riv. and rail for coal and grain. The Rock Is. arsenal is the largest munitions plant in the U.S.A. The first bridge across the Mississippi was built at this point in 1853.

Davertry, municipal bor. and tn. of Northamptonshire, England. It is situated near the sources of the Nene and Avon, 12 m. W. of Northampton. The manuf. of boots and shoes is carried on. It is noted in hist. for the fact that in 1645 Charles I. stayed there a week, prior to the battle of Naseby. There is an important broadcasting transmitter, erected in 1925, on Borough Hill. Pop. 3700. (See illustration on p. 545.)

David (Heb. friend or beloved), the second of the kings of Israel, was the son of Jesse the Bethlehemite. He was the youngest of Jesse's sons, and his business was the guardianship of his father's flocks. Of D.'s introduction to the court two accounts are given, but it seems more reasonable to credit that which traces it to his skill on the harp (1 Sam. xvi. 14 ff.). The account of his conflict with Goliath is difficult to reconcile with other parts of the historical books. Be this as it may, D. quickly rose to a responsible position under the king, though at the same time his prowess raised the royal jealousy. Saul gave him his daughter Michal to wife, but his attitude then became so threatening that it was only by the help of Jonathan and his wife that D. escaped with his life. D. hastened southward, and after a short stay at Nob, finally settled in the cave (i.e. hill-fortress) of Adullam. Here he gathered round him a small band of outlaws, numbering in all some 400 men. D. now became leader of this band, but steadfastly refused to take part in any designs on the 'Lord's anointed.' He subsisted on contributions levied on borderers, in return for the protection he afforded them against the Philistines, Amalekites, and other foes of Israel. Saul, however, pressed him hard, and it was no longer possible for him to continue the one-sided conflict. His following now numbered 600 men, and with these he placed himself at the service of Achish, king of Gath. From him he obtained the lordship of the frontier tn. of Ziklag. Meanwhile both Saul and Jonathan had fallen at Gilboa, and Israel was in a chaotic state. D. moved to Hebron and was soon acknowledged as king by the men of Judah, while the rest of the country remained in the hands of Ishbaal (Ish-bosheth) and the powerful Abner. To this period may well belong the conquest of the Jebusite stronghold (Jerusalem), ascribed in the narrative to the later period when all the country was in his hands. This came to pass on the death of Ishbaal. The Philistines, whose vassal he had hitherto been, now opened war upon him, and many victories are ascribed to him by the chroniclers. Then

followed a succession of wars with Moab, Ammon, and Edom, and D.'s success 'united all the tribes from Dan to Beersheba.' During these campaigns occurred the grievous sin, to the results of which must be ascribed so many of the woes of the latter part of D.'s reign. Absalom, his favourite son, raised a revolution which resulted in his death, and this was followed by still another revolt, that of Adonijah, who was jealous of D.'s design of leaving the crown to Solomon. In spite of the stains which soil D.'s character, and which are, indeed, those of his time, not the most destructive criticism of Bayle, Voltaire, and the rest has been able to do away with eulogistic tradition of the ages. Though recent criticism has demonstrated the impossibility of the Psalter being to any extent his own composition, yet he is universally regarded as the originator of the poetic school. But his great claim to honour is as a legislator. He 'executed judgment and righteousness unto all his people,' and, as Robertson Smith says, his administration 'was never stained by selfish consideration or motives of personal rancour.' See V. Zappeler, *David und Saul*, 1921; Mildred Duff and N. Hope, *David the Shepherd who became King*, 1926; and F. Meyer, *David, Shepherd, Psalmist, King*, 1935.

David I. (1084-1153), king of Scotland, the youngest son of Malcolm Canmore and Saint Margaret, sister of Edgar Ætheling. He married Matilda, daughter of Walthoef, earl of Northumbria, and through her became possessed of the earldom of Huntingdon. On the death of his brother, Edgar of Scotland, in 1107, he received the S. dist. with the title of earl of Cumbria; in 1124 his brother, Alexander I., d., and D. gained the whole kingdom. As an Eng. baron he swore fealty to Matilda, daughter of Henry I., and invaded England on her behalf against Stephen. He was defeated near Northallerton at the battle of the Standard in 1138. After this he returned to Scotland, and devoted himself to the political and eccles. reform of his kingdom. He founded five bishoprics and sev. monasteries: Melrose Abbey, Newbattle Abbey, and Holyrood were endowed out of the crown lands. He consolidated his realm, and built up the feudal kingdom of Scotland. The country prospered under his rule; he encouraged agriculture, and his charters to landowners took the place of unwritten customs of Celtic tenure. The first idea of a real Parliament in Scotland was that of D., tribal authority was swept away, and offences against the king's peace were judged by sheriffs, judges, and other officials specially appointed. Schools were founded for par. churches and burghs, in addition to monastic schools, and during his reign the country became orderly and peaceful.

David II. (1324-71), king of Scotland, b. at Dunfermline, 5th son of King Robert Bruce and Elizabeth de Burgh. He succeeded to the throne in 1329, and was crowned at Scone in 1331. He had been married in 1328 to Joanna, daughter of Edward II. of England. The victory

of Edward III. and Edward Balliol, the pretender to the Scottish throne, at Halidon Hill in 1333, drove D. and his queen to flee to France. He returned in 1341, and in the interests of France invaded England in the absence of the army in France, but was defeated and taken prisoner at Neville's Cross. He remained a prisoner in England for eleven years. By the treaty of Berwick the Scots undertook to pay 100,000 marks as ransom, but the country was too poor to pay the sum, and the king was allowed to return. He secretly offered to treat with Edward III. on the basis of making him or his son successor to the Scottish crown. The nomination of the duke of Clarence was refused by the Scottish Parliament, but D. continued secretly making arrangements with Edward. He d. in Edinburgh in 1371, and was succeeded by his nephew, Robert II.

David, St., bishop of Menevia and patron saint of Wales. The tenth-century *Annales Cambrie* record him as having d. c. 601. There is also record of his having presided at two Welsh synods. These meagre historical facts have formed the basis of a wealth of legend. St. D.'s Day is March 1.

David, Ferdinand (1810-73). Ger. violinist and composer. b. at Hamburg. He was a pupil of Spohr, and from 1836 to 1873 was the leader of the band at the Gewandhaus, Leipzig. He taught at the Leipzig conservatorium, and Joachim and Wilhelm were among his pupils. His compositions include concertos, and he wrote arrangements for the violin, and an excellent violin instruction book.

David, Gerard (c. 1450-1532). Flemish painter, the last great painter of the Bruges school. Among his many famous and beautiful pictures are the great altarpieces, of which a fine example, 'The Marriage of St. Catherine,' is in the National Gallery, London, and the triptych of the 'Madonna Enthroned,' Brignole-Sale collection, Genoa. The 'Transfiguration' is one of the few still remaining in Bruges. See life by J. Weale, 1895.

David, Jacques Louis (1748-1825). Fr. painter, b. at Paris, son of a well-to-do Parisian merchant, who was killed in a duel when J. L. was only nine. His earliest instruction was obtained from his uncle, Boucher; afterwards he studied under Vien. His first ambition was to obtain the Prix de Rome, but it was not till after he had made sev. attempts that he was successful, gaining it in 1774. Then he followed his master, Vien, to Rome, where he spent six years, chiefly in copying the antique and studying the old masters. When he returned to France his 'Belshazzar' (1780) secured his admission to the academy. Between 1775 and 1785, inspired by Rome and guided by Vien, he evolved the strikingly neo-classic idiom for which he is famous. He did not invent the neo-classic style but he was its greatest exponent. With his 'Andromache grieving over the dead Hector' he was admitted a full Académicien. His fame was greatly enhanced with 'The Oath

of the Horatii' (1785)—a picture in which he was deliberately rousing in the masses a civic and patriotic sense. At the time of the revolution he became an enthusiastic representative for Paris in the convention and he was also made a member of the committee of public safety. After Robespierre's death he was twice imprisoned and in danger of his life. In 1804 Napoleon appointed him court painter, and made him commander of the Legion of Honour, but when the Bourbons were reinstated he was banished as a regicide to Brussels, where he remained till his death. D. was in his time both the leader of the Fr. school and the most famous artist in Europe. There are twenty-four of his pictures in the Louvre, his best known being 'Napoleon on Mount St. Bernard,' 'The Coronation of Napoleon,' 'Oath of the Horatii,' 'Cupid and Psyche.' See lives by T. Thoré, 1843, and R. Cantinelli, 1930.

David, Pierre Jean (1789-1856), Fr. sculptor, known as David d'Angers, b. at Angers, of extremely poor parents. Overcoming family opposition, he went to Paris, and by hard work gained a prize at the École des Beaux Arts and, in 1811, the Prix de Rome; he stayed five years in Rome, studying Canova. He became famous for his busts and medallions. His chief works are a monument to the Gk. liberator, Botzaris, the pediment of the Panthéon in Paris, and the statue of 'Philopœmen,' now in the Louvre.

David, city and cap. of the Chiriqui dist. in Panama. It is situated on the Rio D. in a fertile valley, 8 m. from the entrance of the riv. into the Pacific. Tobacco is largely cultivated, and stock raising is an important industry. Pop. 7000.

David, Thomas William Rhys (1843-1922). Eng. oriental scholar. He was the prin. Eng. authority on Buddhism and Buddhist literature. Among his works are *Buddhist Suttas* (1881); *Buddhism* (1889); *Sacred Books of the Buddhist* (1889); and *Buddhist India* (1903).

Davidson, Andrew Bruce (1831-1902), Scottish divine and theologian, b. at Kirkhill. In the Free Church the advanced critics or theologians who filled the college chairs, owed their inspiration to D., who went to the Heb. chair in New College, Edinburgh, in 1863. In 1865 he was made prof. of oriental languages, and was one of the O.T. revisers of the A.V. of the Bible. He pub. various works on Heb. grammar, syntax, etc.

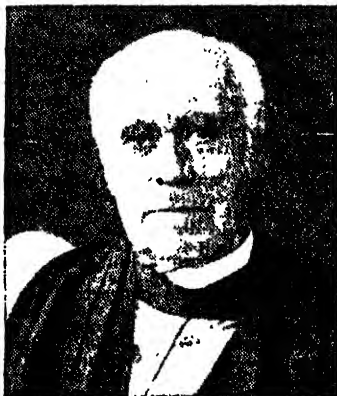
Davidson, George (1825-1911), astronomer, b. at Nottingham. When still a boy he went to America, and in 1845 joined the U.S. coast survey. He also engaged in surveying work from Maine to Texas, and on the Pacific coast. He was given the command of sev. astronomical expeditions, and his name is connected with the invention of many astronomical instruments.

Davidson, John (1857-1909), Scottish poet, dramatist, and writer, b. at Barrhead, Renfrewshire, Scotland; was a master in Scottish schools, was also in business, and in 1890 came to London.

His early poetical plays, *Bruce* (1886), *Smith: a Tragedy* (1888), and *Scaramouch in Nazos* (1889), attracted no attention, nor did the strange example of his original genius, the romance *Perjuria* (1890). His first success was in *Fleet Street Eclogues* (1893, 2nd series, 1896), followed by *Ballads and Songs* (1894). His novels of this period include *Baptist Lake* (1894) and *A Full and True Account of the Wonderful Mission of Earl Lavender* (1895). He adapted Coppée's *Pour la couronne* for Forbes Robertson (as he then was) and Mrs. Patrick Campbell in 1896, and wrote other literary, poetic plays, such as *Godfrida* (1898) and *The Theatrical* (1905). His satiric and didactic works include *The Testament of a Visivector* and *The Testament of a Man Forbid* (1901), and *The Testament of an Empire Builder* (1902). His last book of poems, *Fleet Street and other Poems*, was pub. in 1909, and a dramatic work *God and Mammon* in 1907. He was drowned near Penzance under mysterious circumstances pointing to suicide. See H. Jackson, *The Eighteen Nineties*, 1913; H. Fineman, *John Davidson: a Study of the Relation of his Ideas to his Poetry*, 1916; and P. Thouless, *Modern Poetic Drama*, 1934.

Davidson, Randall Thomas, Lord (1848-1930), ninety-sixth archbishop of Canterbury, b. at Edinburgh; educated at Harrow and Trinity College, Oxford; ordained 1874, and was domestic chaplain to Archbishop Tait, whose daughter Edith he married in 1878. In 1882 he was made dean of Windsor and domestic chaplain to Queen Victoria. He was bishop of Rochester 1891, of Winchester 1895, and succeeded Archbishop Temple of Canterbury, 1903. He was president of the Pan-Anglican Congress, 1908, and of the subsequent Lambeth conference, and crowned George V., 1911. He will be remembered for his practical conception of the great opportunity offered to the Anglican communion in the empire. His W. Canada Fund had a marked effect on the religious life of the prairie provs. In the First World War he supported the national cause from a belief in its justice, but he was never betrayed into any wild approval of war as such. Rather did he occupy himself with the promotion of that spiritual renewal which the strain of the times seemed to demand. He estab. important committees to deal with intellectual problems, with worship, with social questions, and with church organisations. As a result of these and similar activities, the 'Life and Liberty' movement came into existence as a focus for the younger men of all schools of thought, and, with this movement, came the Enabling and Constitution Act, which he piloted through the House of Lords, and under which the church assembly and its subordinate councils were set up. The creation of the assembly provided him, in his later years, with a function and opportunity exactly suited to his temperament and gifts; and under his guidance legislation embodying sound practical reforms was presented to Parlia-

ment. As regards Rome, he regarded any real rapprochement between Canterbury and the Vatican as outside practical politics. The Lambeth conference of 1920 encouraged inquiry into the possibilities of religious reunion, and it was argued by some that reunion must begin with a movement towards reunion with the Rom. Church; but in the ensuing conversations at Malines with Cardinal Mercier he adroitly denied to the discussions the character of negotiations and the essential obstacles to such reunion remained unassailed. Yet, if these conversations achieved no practical result, D.'s vigilant interest in all that concerned the Orthodox churches not only drew those churches closer to the Anglican



'The Times'

LORD DAVIDSON

communion, but also brought them into contact with other forms of European Christianity. D. was recognised as the champion of E. Christians, whether the oppressor was Bolshevik or Turk. His view of the relation of Christianity to world affairs was never narrowly eccles. as was shown by his preaching at Geneva on the eve of the third assembly of the League of Nations. It was perhaps as a legislator and as a parliamentarian that the Church missed him most, and in the House of Lords he found the calm and judicial atmosphere in which he liked to discuss grave questions. His last years brought severe disappointments; his efforts of many years to solve, by settlement, the difficult religious problem in elementary education were at length nullified by eccles. factions hotly opposed to what they conceived to be the surrender of church schools. A still greater disappointment came with the rejection by the House of Commons of the 1927 and 1928 Prayer Book measures; for the hopes he had reposed in the authorisation of an alternative Prayer Book had increased with the labour he had bestowed on its

preparation; but it would seem probable that, like Cramer, he had excessive faith in a new Prayer Book as a means of composing differences and restoring discipline within the Church. Soon after the second defeat of the Prayer Book measure in 1928 he resigned, his retirement being, however, prompted solely by his sense of duty to the Church. The king bestowed a barony upon him, an honour almost without precedent in the instance of one who had been a spiritual peer. He wrote the *Life of Archbishop Taft* with Canon W. Benham, 1891, and ed. the *History of the Lambeth Conferences* (1889). See life by G. K. A. Bell, bishop of Chichester, 1935.

Davidson, Samuel (1807-98), Irish biblical scholar. He accepted the chair of biblical criticism and oriental languages at Independent College, Manchester. The advanced views of his *Interpretation of the Bible*, an introduction to the text of the O.T., caused his resignation in 1857. His works dealing with biblical criticism include introductions to the N.T. (1851) and to the O.T. (1862); *The Canon of the Bible* (1877). He trans. Fürst's ed. of Buxtorf's great *Hebrew Lexicon*. He was one of the O.T. revisers of the A.V. of the Bible.

Davidson, Thomas (1838-70), Scottish poet, b. near Jedburgh. He was known as the Scottish Probationer, and though a licensed preacher of the United Presbyterian Church he never held a living. He was a poet and author of the popular students' song, *Yang-tsi-Kiang*; he also wrote *The Auld Ashie Tree* and *Myspie's Den*. See J. Brown, *Life of a Scottish Probationer*, 1877.

Davies, Arthur B. (1862-1928), Amer. modernist painter, trained under Dwight Williams and at the Art Institute, Chicago. His 'Spring's Renewal' and 'The Breath of Life' were first shown in New York, and stamped him as a notable adherent of the romantic school. 'The Circle of Ares,' which was bought by the Metropolitan Museum of Arts, was first exhibited in Philadelphia; and thereafter other notable pictures were 'Visions of the Sea' and 'Children of Yesterday,' the latter of which is now in the Brooklyn Museum. In 1916 D. was awarded the first W. A. Clark prize and the Corcoran medal. The chief of his modernist paintings is 'The Great Mother.'

Davies, Ben (1858-1943), Welsh tenor, b. at Pontardawe, near Swansea. He started life in trade, then went to London to study at the Royal Academy of Music. Began by singing in Balfe's *The Bohemian Girl*, and took part in the operas of Goring Thomas, Mackenzie, and Stanford. He sang in the long run of Cellier's *Dorothy* in London, and then in Sullivan's *Ivanhoe* at D'Oyly Carte's Eng. opera house. For some years he was a member of the Carl Rosa company. He sang in both Eng. and It. operas. Leaving the stage he took to oratorio and concert singing, and for many years was the leading Brit. tenor. Those who were present at the celebration of his eightieth birthday will remember the perfect ease of style with which he sang *Onaway! Awake, Beloved!*

Davies, Mrs. David, see KENNEDY, MARGARET.

Davies, Fanny (1861-1934), Eng. pianist, b. in Guernsey. She went to Leipzig to study music, and became a pupil of Reinecke and also of Oscar Paul. While staying at Frankfurt she studied with Clara Schumann. Played at all the great European festivals, accompanied Joachim, and after her first appearance in 1885 was for many years one of London's popular favourites.

Davies, Sir Henry Walford (1869-1941), Brit. organist, b. at Oswestry; choir boy at St. George's Chapel, Windsor, under Sir Walter Parratt. Assistant organist to the latter, 1885-90. Studied at Royal College of Music, 1890-94; pupil of Parry, Rockstro, and Stanford. Organist, St. Anne's, Soho, 1891-98; at Temple Church, 1898-1919, with which church his work as organist and choirmaster is specially associated; and at St. George's Chapel, Windsor, 1927. Appointed prof. of music at the univ. of Wales, Aberystwyth, 1919, and chairman of the National Council of Music in connection with that univ. He succeeded Elgar in 1934 as Master of the King's Musick, and in 1935 organised a great choral concert at the Albert Hall to mark George V.'s jubilee. A prolific composer, especially for chorus and orchestra. In the first of these categories his best known work is his *Everyman*, produced at Leeds, 1904, and the *Song of St. Francis*, performed in Birmingham, 1912. Among his songs are *When Childey Play* and *I Love the jocund Dance*. Probably his best known composition is the *Solemn Melody* for organ and orchestra, which is frequently and widely played. His most important contribution to the musical life of his time was, however, less in composition than as teacher, adjudicator, and lecturer.

Davies, Hubert Henry (1876-1917), Eng. playwright; b. at Woodley, Cheshire. Educated at private schools. Went, 1893, to San Francisco, became journalist and writer of sketches. Returned to England, 1901; produced plays in London: *Mrs. Goring's Necklace* (1903); *Cousin Kate* (1903); *Amelia* (1904); *Captain Drew on Leave* (1905); *The Mollusc* (1907); *Lady Epping's Lawsuit* (1908); *Bevis* (1909); *A Single Man* (1910); *Doormats* (1912); and *Outcast* (1914). Work as hospital orderly in France broke his health. He was recuperating at Robin Hood's Bay, where his overcoat and stick were found near the cliff edge, Aug. 17, 1917. He was never seen again.

Davies, or Davis, Sir John (1569-1628), Eng. poet and lawyer, b. at Tisbury, Wiltshire. He was educated at Oxford (1585), and called to the Bar in 1595. He seems to have enjoyed a reputation for wit, and wrote many epigrams as well as poems. James I. took him into favour, and made him solicitor-general of Ireland in 1603, and three years later attorney-general; when he was created serjeant-at-arms. His energy and zeal for the Protestant religion accomplished some good work. He was appointed lord chief justice shortly before his sudden death.

In conjunction with Sir Robert Cotton he founded the Society of Antiquaries. His best known works are the philosophic poems *Orchestra*, in which the world is exhibited as a dance (1596), and *Nosce Teipsum*, a poem on human learning and immortality (1599). His works were ed. by Dr. A. B. Grosart (1869-76). He must not be confused with John Davies (q.v.) of Hereford (c. 1565-1618), the poet, whose works were also collected by Dr. Grosart (1873).

Davies, John (1679-1732), Eng. classical scholar and critic, *b.* in London. His father was a merchant of Cambridge, his mother being a daughter of Sir John Turton, a judge of the king's bench. He was educated at Charterhouse School and at Queens' College, Cambridge, and subsequently became president of the college. Collated to the rectory of Fen Ditton and to a prebend in the church of Ely. His editorial labours were great: thus he pub. the following correct eds. of (Gk. and Lat. authors: *Trisulcanæ disputationes* (1709); *De natura deorum* (1718); *De divinatione* and *De fato* (1725); *Academica* (1725); *De legibus* (1727); and *De finibus bonorum et malorum* (1728, 1741).

Davies, John of Hereford (c. 1565-1618), Eng. poet, *b.* at Hereford, where he was a writing master. His poems, which are not without merit, are somewhat prolix and tedious and devoid of delicacy and taste. They are recalled mainly for their accidental interest of reference. His chief work, *Microcosmos* (1603) is shaped on Joshua Sylvester's trans. of the *Semaines* of du Bartas. His *Scourge of Folly* (c. 1611) has verses addressed to numerous contemporaries, and, among them, Shakespeare. Other works: *Willes Pilgrimage* (1610); *The Muses Sacrifice* (1612); and *A Select Second Husband for Sir Thomas Overbury's Wife* (1616). His poems were collected by A. B. Grosart (2 vols.), 1873.

Davies, Sir Louis Henry (1845-1924), Canadian jurist and Liberal statesman, *b.* in Prince Edward Is., son of Hon. Benjamin D. He was called to the Bar in 1867, solicitor-general, 1869, 1871-72. Leader of opposition in Legislative Assembly, 1873. Premier and attorney-general, Prince Edward Is., 1876-79. Elected to dominion Parliament, 1882. Minister of marine and fisheries, 1896-1901. On commission at Quebec, 1898-1899, to settle questions with U.S.A. In London on Behring Sea business, 1899 and 1900. Judge, Canadian supreme court, 1901; chief justice, 1918. Privy Councillor, 1919.

Davies, Mary (1855-1930), Eng. soprano, *b.* in London. Of Welsh parentage, she was trained as a public singer, and in 1880 created the part of Margaret in the Eng. version of Berlioz's *Faust*. Took part in most of the Eng. musical festivals, and for many years sang at the London ballad concerts as their leading soprano.

Davies, Sarah Emily (1830-1921), Eng. feminist pioneer; *b.* at Southampton, daughter of Rev. J. Davies, D.D. Educated at home. Secretary of committee (1864) for obtaining opening of Cambridge

local examinations to girls, a demand which was successfully accomplished in the following year. Agitated for London Univ. degrees for women, and likewise succeeded in 1874. Honorary secretary of movement (1867) inaugurating Hitchin College, rehoused at Girton, 1873, D. being a mistress for two years. Member of London School Board, 1870-73.

Davies, Thomas Wlton (1851-1923), Eng. Heb. scholar, educated at Univ. College, London, where he won the first prize in logic and philosophy, and also in Heb. In 1897 he was appointed lecturer in Arabic and Syriac at Univ. College, Nottingham; and in 1899 prof. of Heb. and O.T. literature at the Baptist College, Bangor; prof. of Semitic languages in N. Wales Univ. till 1921. Amongst his numerous puba. are *Oriental Studies in Great Britain* (1892); *The Scriptures of the Old Testament* (1900); *Welsh Political and Educational Leaders* (1907); and *Outstanding Literary and Human Factors in Life* (1911).

Davies, W. D., generally known as Karri Davies, *b.* at Karriale, Australia. He went to S. Africa and came into public notice during the agitation of the Uitlanders in the Transvaal against the Kruger regime, and was a member of the Transvaal Reform Committee; he was arrested with other members at the failure of the Jameson Raid in 1897. Sentenced to two years' imprisonment and a heavy fine, he with Woods-Sampson alone refused to appeal from the sentences and was retained on the liberation of the other prisoners. He fought in the S. African war (1899-1902), was wounded at Elands-laagte, and was present at the relief of Mafeking.

Davies, William Henry (1871-1940), Brit. poet; *b.* at Newport, Monmouthshire, of Welsh parentage. Served apprenticeship to picture-frame making. Went to America and for six years lived chiefly as a tramp, visiting England in cattle-boats. Peddled lace, pins, etc., on return to England. Poetry began with *The Soul's Destroyer* (1907). Collected eds., 1916 and 1924. Prose includes *Autobiography of a Super-Tramp* (1908); *A Weak Woman* (novel) (1911); *Adventures of Johnny Walker, Tramp* (1926); and *Dancing Mad* (1927). The *Autobiography* (to which George Bernard Shaw wrote a preface) records the queer story of his early life in America, where he lost his right foot while 'jumping' a railway train in Canada. On his return he lived in a public lodging-house in London, where he wrote a blank-verse tragedy, *The Robber*, which was rejected by two publishers, a long narrative poem, and a hundred sonnets. He managed to collect £20, and at his own risk pub. some poems and posted two brief press notices of them to various prominent people. He eventually became a notable figure in twentieth-century poetry. He is not a poet of the first magnitude, but is at his best when, as in *The Loneliest Mountain*, poetic feeling finds expression in words of unlaboured fitness. The artless simplicity of his later work has been the butt of parodists, yet these poems show a

distinctive and pleasing quality. To produce poetry of any quality was an achievement in circumstances such as he describes in *The Lodging-house Fire*, a verse transcript of experiences related in the *Autobiography*. Like Herrick he is a poet of extreme accomplishment and sophistication, 'wrapped in a deceptive aura of simplicity.' His place is with Collins, Clare, and Wm. Barnes. Poems like *Go Lovely Rose* will live long after much original and deeper poetry is forgotten; while in such poems as *The Heap of Rags*, *The Bird of Paradise*, and *The Sleepers* he touched a note of poignant tragedy even more intense and individual in expression. His collected poems were pub. in 1940.

Davila, Enrico Caterino (1576-1631), It. statesman, b. near Padua; his father, a distinguished Cypriot, had fled to France when the Turks conquered Cyprus. From being a page at the Fr. court he rose to the position of one of the leading men of Venice, as governor of Dalmatia and Candia. He wrote a famous hist. of the Civil wars of France. He was assassinated on his way to Crema.

Da Vinci, see LEONARDO DA VINCI.

Davis Cup, presented by Dwight F. Davis of St. Louis in 1900 as a sort of international challenge cup. Conditions for D. C. were submitted by United States N.L.T.A. to the Lawn Tennis Association in London, on Jan. 16, 1900. The regulations have since been revised and the competition is now called The International Lawn Tennis Championship. It is a knock-out men's tennis tournament between nations. Singles and doubles are played, ties are drawn for, and the challenge tie is played in the country of the champion nation. America has held the cup thirteen times, Great Britain seven times, Australia six times, and France six times during the years 1905-1948. During the Second World War Australia retained the D. C., being unchallenged after their victory in 1939.

Davis, Cushman Kellogg (1838-1900), Amer. political leader and lawyer, served during Civil war in the Federal Volunteers; became prominent in state politics as a Republican; from 1874 to 1876 he was governor of Minnesota; from 1887 U.S. senator. Had great influence on Amer. foreign policy, and signed the treaty of Paris after the Sp.-Amer. war.

Davis, Elmer Holmes (b. 1890), Amer. writer and radio news commentator, b. at Aurora, Indiana, U.S.A. Rhodes scholar, New College, Oxford, 1912-14. On editorial staff of *Adventure*, 1913-14, and *New York Times*, 1914-24. News commentator, Columbia Broadcasting System, 1939-42; director, Office of War Information, U.S. Gov. 1942-45. President of council of the Authors' League of America 1939-41. Pub.: *Times have changed* (1923); *Friends of Mr. Sweeney* (1925); *Strange Woman* (1927); *Giant Killer* (1928); *Morals for Moderns* (short stories) (1930); *Love Among the Ruins* (short stories) (1935); and *Not to mention the War* (1940).

Davis, Henry William Carless (1874-1928), Eng. historian. Educated at Wey-

mouth College, and went to Balliol College, Oxford, as Brackenbury hist. scholar; won Jenkyns exhibition in his fourth year. Deputy prof., Univ. College, N. Wales, 1896-97. Lecturer New College, 1897-99; Balliol, from 1899. An enthusiast for medieval times. Contributed to the *English Historical Review* and *Cambridge Modern History*. Pub. *Balliol College* (hist.) (1899); *Charlemagne* (1900); *England under the Normans and Angevins* (1905); and *Medieval Europe* (1911). Became regius prof. of modern hist., Oxford, 1925; was editor of the *Twentieth Century Dictionary of National Biography*.

Davis, Henry Winter (1817-65), Amer. political leader, b. at Annapolis, Indiana. Served in the National House of Representatives as a Know Nothing, 1855-56. After Lincoln's election he became a Republican, and opposed Lincoln's plan for the reconstruction of the S. states, and issued with Benjamin Wade of Ohio the 'Wade-Davis manifesto,' which denounced Lincoln. In 1861 declined nomination to the vice-presidency. Chairman of committee of foreign affairs, 1863-65. Pub. *The War of Ormuzd and Ahriman in the Nineteenth Century* (1853) against the slave-holders.

Davis, Jefferson (1808-89), only president of the confederate states during the Amer. Civil war, b. at Fairview, Kentucky. D.'s father Samuel was of Welsh extraction. After attending schools in Kentucky and Mississippi, he graduated from old Transylvania College in his native state in 1824, and then attended the U.S. Military Academy, from which he graduated in 1828. He remained in the U.S. Army for seven years, and distinguished himself as a young officer in the Black Hawk Indian war of 1833. Marrying a daughter of Col. afterwards Gen. and President, Zachary Taylor, he bought a cotton plantation in Mississippi, where he made a comfortable fortune. He lost his first wife of fever after three months, and afterwards married Varina Howell of Mississippi. For a long time thereafter he devoted himself to his books and his plantation. As he treated his own slaves kindly and gave them a large measure of self-government, he became a convinced supporter of African slavery, really believing that all slave-holders treat their human property in as benevolent a manner as he did. He was elected to the National House of Representatives in 1845, but on the outbreak of the war with Mexico resigned this post and went to battle as colonel of the First Mississippi Infantry in the army led by his father-in-law. He served with distinction at the battle of Monterey, and on Feb. 22, 1847, became something like a national hero because he saved the day at the battle of Buena Vista. In the same year he was elected to the U.S. Senate, and was made chairman of its committee on military affairs. He ran for governor of Mississippi in 1851, but was defeated. President Franklin Pierce made him secretary for war in his Cabinet in 1853. D. energetically improved the army, and pushed the construction of coast defences

and the survey of the far W. for future railway lines. Once more elected to the Senate in 1857, he became the leader of the S. democrats. The election of Lincoln as president in the fateful campaign in 1860 caused D. to burn his bridges. In the Senate he passionately asserted the right of the S. slave-holding states to secede from the union and form a separate nation. When Mississippi formally seceded and joined the confederacy, D. fondly hoped to lead Mississippi troops in the coming armed conflict, but to his dismay the S. congress on Feb. 9, 1861, chose him as provisional president of the confederacy. In a later election by the people he was again chosen president, Feb. 22, 1862. In the war D. blundered by retaining the services of generals who had been shown to be unfit for their task. Press and public began to turn against him, and Gen. Lee might have been able to seize supreme power if loyalty to the gov. had not been his first and his last word. When Richmond, the cap., fell into Union hands, D. moved first to Danville, Virginia, thence to Greensboro, N. Carolina, and was finally captured near Irwinsville, Georgia, May 10, 1865. Manacled and harshly treated, he was confined in Fortress Monroe, Virginia. Sev. efforts were made to connect him with the assassination of Lincoln and with the harsh treatment of prisoners at Andersonville, but without success. Two indictments for treason were found against him and for some years he was refused trial or bail. This cruelty aroused the sympathy of the people of the S., who looked upon D. as a martyr to their cause, and in large measure reinstated him in the esteem he had lost on account of his blunders. Finally (1867) he was admitted to bail; many of his former political opponents stood as sureties, while Charles O'Connor, a leader of the New York Bar, volunteered to defend him. O'Connor moved to quash the indictment on which D. was brought to trial, but the court of two judges was divided. The matter was then certified to the Supreme Court, and no decision of which there is record was ever announced by that tribunal, and meanwhile the administration dismissed the prosecution and discharged D. who went to Canada. He benefited from the general amnesty of 1868 and returned to Belvoir, Mississippi, where he spent the rest of his life quietly, refusing to take any part in politics. He d. suddenly in New Orleans, Dec. 6, 1889. He wrote sev. books, one of which was *The Rise and Fall of the Confederate Government* (1881). See also UNITED STATES, *History*. See Mrs. Varina Howell Davis, *Jefferson Davis, a Memoir*, 1890; lives by F. H. Alfriend, 1868, E. A. Pollard, 1869; and W. E. Dodd, 1907; also W. E. Dodd, *Statesmen of the Old South*, 1929.

Davis, John (1550-1605), celebrated Eng. navigator, considered the father of Arctic discovery. Was b. in Stoke Gabriel, near Dartmouth, Devon. In his early days he made various expeditions around Greenland, and after suffering many reverses of fortune succeeded in pushing through the

strait which bears his name to Baffin Bay. His next voyages were in the S. Seas. In 1597 he took a Dutch vessel to the E. Indies, and had trouble in Madagascar. He then undertook a short expedition as major of the fleet. He wrote *The Seaman's Secrets* (1594) and *The World's Hydrographical Description* (1595). See life by C. R. Markham, 1889.

Davis, Sir John, see DAVIES.

Davis, Mortimer Barnett (1866-1928), Canadian financier. President of the Imperial Tobacco Company of Canada and chairman of the Canadian Industrial Alcohol Company, besides being a director of the Royal Bank of Canada and a member of sev. other great commercial concerns in the dominion. Was often styled "the tobacco king of Canada." Gave munificent amounts to philanthropic concerns.

Davis, Richard Harding (1864-1916), Amer. novelist and journalist; b. in Philadelphia, son of L. Clarke D., editor of the *Public Ledger*, and his wife was Rebecca Harding D., novelist. Throughout the Sp.-Amer. war he acted as war correspondent. He served in the same capacity during the Boer war in S. Africa. He wrote sev. books relating to these campaigns, as well as a large number of novels; also a play entitled *Dictator*, produced at the Comedy Theatre, London, May 1905. In 1914 he was in Mexico as war correspondent of the New York *Tribune*. Later he went to Belgium. He wrote *With the Allies and Somewhere in France* (1915).

Davis, Thomas Osborne (1814-45), Irish poet and journalist. He attached himself to the party of Daniel O'Connell, and worked on the committee of the Repeal Association, 1841. In conjunction with J. B. Dillon and Charles Gavan Duffy he started the weekly paper *The Nation*, and his best work appeared in this, comprising some fine lyrics such as the *Lament for Owen Roe O'Neill*; *The Battle of Fontenoy*, etc., and historical sketches. Trouble arose between O'Connell and the Young Ireland party, as they were called, and D. was attacked on the plea that he was anti-Catholic, but he retained a strong influence on his party until his early death from scarlet fever. See Sir C. Gavan Duffy, *Thomas Davis*, 1896.

Davis, William Morris (1850-1934), Amer. geographer and geologist, son of Edward Morris, b. in Philadelphia. Educated at Harvard Univ., he taught geology and geography there in 1876 and 1878 respectively. His prin. pubs. are *Elementary Meteorology* (1894); *Physical Geography* (1899); *Elementary Physical Geography* (1902); *The Triassic Formation of Connecticut and Geographical Essays* (1909); *A Handbook on Northern France* (1918); and numerous articles in scientific journals.

Davison, William (1541-1608), secretary to Queen Elizabeth. Of Scottish birth, and a friend of Robert Dudley, he was employed on various diplomatic missions by the queen. He became a member of Parliament, a Privy Councillor, and in 1588 assistant to the queen's secretary,

Walsingham. He brought the warrant for the execution of Mary Queen of Scots for Elizabeth's signature and bore the brunt of the queen's displeasure when it was carried out, being heavily fined and imprisoned. In 1589 he was released, but not restored to favour, and he retired to Stepney, where he d.

Davissou, Clinton Joseph (b. 1881), Amer. physicist, b. at Bloomington. Educated at univ. of Chicago and Princeton Univ. (1908-11). Instructor in physics, Carnegie Institute of Technology, Pittsburgh (1911-17). Member of technical staff of the Bell telephone laboratories, New York city, 1917-46. Known for researches in electricity, magnetism, and radiant energy. Discovered (with L. H. Germer) the diffraction of electrons by crystals (1937). Comstock prize, 1928; Elliott-Cresson medal, 1931; Hughes medal of the Royal Society, 1935. Shared Nobel Prize for physics with George Paget Thompson (1937). Member of the National Research Council, 1928-31, and 1933-36. Pub. papers on thermionics, radiation, electron diffraction, and electron lenses in scientific journals.

Davis Strait separates N. America and Greenland, joining Baffin Bay with the Atlantic Ocean. The name is derived from John Davis, who was the first to explore it. It is from 160 to 180 m. across at the narrowest point, and the greatest depth is about 950 fathoms.

Davitt, Michael (1846-1906), Irish Nationalist politician, b. in co. Mayo. His father having been evicted in 1851, the boy started life in a Lancashire cotton mill, but in 1857 a machinery accident resulted in the loss of his right arm. In 1865 he joined the Fenians, and five years later was arrested on the charge of importing fire-arms into Ireland, and was sentenced to fifteen years' penal servitude. Released after seven years he returned to Ireland in 1879, and helped Parnell to start the Land League, with the result that he was re-arrested, but released on ticket-of-leave again in 1882, when he was elected to Parliament as Nationalist member for Meath, but as a convict was not allowed to sit. He was one of the respondents before the Parnell Commission (1888-90), and spoke for five days in his defence. He was elected to Parliament on three subsequent occasions, but never sat for any length of time. He wrote a good deal, and was bitterly anti-Eng. and anti-clerical.

Davos, mt. valley in the canton of the Grisons, Switzerland. Its two prin. vils. are Davos-Platz and Davos-Dorf (with 9200, mainly Protestant, inhab.), which are 5015 ft. above sea level. They are situated 40 m. E. of Coire and 18 m. from Sûs in the Lower Engadine. The valley is sheltered from the cold winds and enjoys brilliant sunshine, and these facts being noted by Dr. Spengler in 1865, he advocated the place for consumptive patients, and the valley has since become a famous winter resort for those suffering from the disease. There are many hotels and sanatoria, and the winter sports attract many visitors.

Davout, Louis Nicolas, Duke of Auerstädt and Prince of Eckmühl (also Davoust and Davoust) (1770-1823), marshal of France, and one of the most brilliant of Napoleon's generals; b. at Annoux. He went through the Rhine campaigns of 1794-95 and on the expedition to Egypt with Bonaparte. After the Marengo campaign he became general of div., and when Napoleon became emperor was created a marshal of France, was in command of the 3rd Corps of the Grande Armée at Austerlitz, and with a single corps won the victory of Auerstädt against the main Prussian Army. He was made duke of Auerstädt in 1808. After being governor of Poland he took part in the war with Austria (1809), and was made prince of Eckmühl. He organised the army for the Russian campaign, through-out which he commanded the 1st Corps, and in 1813 he sustained the siege of Hamburg. He retired on the first restoration, joining Napoleon on his return from Elba, when he became minister of war, and was left in command of Paris after Waterloo. His stern discipline made the troops he commanded the most trustworthy in Napoleon's armies, and his severity and extortion in conquered ters. were in execution of the emperor's orders. At the second restoration he was deprived of all his titles, but in 1817 they were restored to him.



SIR HUMPHRY DAVY

An engraving after a painting by Sir Thomas Lawrence.

Davy, Sir Humphry (1778-1829), Eng. chemist, b. at Penzance, Cornwall. His father was a woodcarver. He was educated at Truro, studied medicine and set up as a doctor, devoting his leisure to chemical research. The results of his experiments were pub. by Dr. Beddoes, who made him superintendent of the Pneumatic Institute. This led to his appointment to the post of assistant lecturer of chem. to the Royal Institution,

London, where his brilliant scientific success, his versatility, and originality brought him recognition and fame, which spread abroad. In 1807 he delivered a remarkable Bakerian lecture on 'some Chemical Agencies of Electricity,' embodying the results of experiments he had been making for some time. It revolutionised the scientific world, and France bestowed on him the Napoleon prize of 3000 francs. In these experiments he discovered sodium and potassium. He planned the ventilation of the House of Lords, and in 1812 was knighted by the prince regent, the same year marrying Mrs. Apreece, heiress and daughter of Charles Kerr of Kelso. With Faraday he visited the Continent, where he met contemporary leading scientists: Ampère, Cuvier, Chevreul, and Humboldt. On his return to England his investigations into the causes of fire damp resulted in his invention of the miners' safety lamp. Numerous honours followed. He was made baronet and president of the Royal Society. Failing health necessitated his leaving England, and he d. at Geneva. His collected works were ed. by his brother, John D. (1839-41). See lives by J. A. Paris, 1831; J. Davy, 1836; Sir T. E. Thorpe, 1896; and P. A. Guye, 1907.

Davy, John (1763-1824), Eng. musician, b. near Exeter, and d. in London. He wrote many songs, the best known of which is *The Boy of Biscay*.

Davy, Jones, sailor's name for the evil spirit of the sea, the sailor's devil, whose locker is the ocean, the grave of those who die at sea.

Davy Lamp, form of safety lamp, used especially in mines, which will allow an illuminant to be burnt in it without danger of explosion from the explosive gases often generated in the passages of the mine. The principle of these lamps is that sufficient air should be allowed to enter to allow the light to burn, while at the same time the flame or gases of combustion should not escape at a temp. which would cause ignition of the explosive gases in the mine. Sir Humphry D. in 1816 invented the lamp which has since then borne his name. It consists of a cylindrical lamp, to which air is admitted at the bottom and covered by a cage of iron wire gauze, the mesh of which was at that time of 789 apertures to the sq. in. This standard has been reduced. The lamp is in two parts, locked together so that once lighted the gauze cannot be removed. Many improved lamps have been made on this system, especially to prevent the inflammable gases, travelling at high velocities, being forced back into the lamp.

Dawes, Charles Gates (b. 1863), Amer. brigadier-general of engineers and financial expert; b. at Marietta, Ohio, son of Gen. Rufus R. D. Comptroller of the currency, 1897-1902. In First World War major of engineers in France from 1917, became member of Allied Purchasing Board, in 1918 brigadier-general. Appointed by Reparations Commission to preside over committee for examining Germany's capacity for reparation pay-

ments, which sat in Paris Jan.-April 1924, and whose report of April 19 submitted so-called Dawes Plan (q.v.). In 1924 elected vice-president U.S.A., for term 1925-29. Received the Nobel peace prize in 1925. Ambass. to the court of St. James, 1929. Pub. *A Journal of the Great War* (1930), a record of his activities as president of the Purchasing Board of the Amer. expeditionary force in France; also *A Journal of Reparations* (1939) and *Journal as Ambassador to Great Britain* (1939).

Dawes, William Rutter (1799-1868), Eng. astronomer, who made a name by his observations and measurements of the double stars; he made an early observation of the dusky ring of Saturn, 1850, and in 1855 won the gold medal of the Astronomical Society. He effected notable improvements in the micrometer. He was a clergyman and worked at his private observatories at Ormskirk, Cranbrook, Wateringbury, near Maidenhead, and Haddenham.

Dawes Plan. This was the name given to the scheme evolved by the committee of experts which was set up to investigate the financial conditions in Germany and to settle the amount of money which Germany could pay as reparation for war damage—such amount to be without prejudice to the balancing of the Ger. budget and the stabilising of Ger. currency. On Oct. 24, 1923, the Ger. Gov., forced by severe economic pressure, applied to the Reparations Commission under Act 234 of the treaty of Versailles for an investigation of Ger. economic resources and her capacity to pay. This application was followed on Nov. 2 by a notification to the effect that for the time being Germany was unable to pay for deliveries in kind. The application was granted and the Reparations Commission decided on Nov. 30 to appoint two committees: (1) the Dawes Committee to investigate and report as above; (2) the McKenna Committee to inquire into, and report upon, the flight of Ger. capital abroad since the armistice. The Dawes Committee was presided over by C. G. Dawes, U.S.A., and the other members were O. D. Young, U.S.A.; R. M. Kindersley and J. C. Stamp, Great Britain; J. Parmentier and E. Allix, France; A. Pirelli and F. Flora, Italy; E. Francqui and M. Houtard, Belgium. The gist of the committee's report (which became the basis for the eventual settlement) may be given in these words: 'Beyond the fixed annuities which shall be normally 2½ milliard gold marks there will be no longer any other liabilities arising out of the treaty of Versailles or the world war.' The normal annuity of 2½ milliard gold marks was to be obtained from the following sources:

1,250,000,000 from customs duties and consumption taxes.
660,000,000 from the railways.
290,000,000 from the transport tax.
300,000,000 from industry.
2,500,000,000

And the normal annuity was to be reached in the fifth year. The actual payments made were:

	gold marks
1924-25	1,000,000,000
1925-26	1,220,000,000
1926-27	1,500,000,000
1927-28	1,750,000,000
1928-29	2,500,000,000

The standard figure was reached on Sept. 1, 1928, and an additional payment became liable after the close of the year 1928-29 calculated on an index of prosperity, based on certain trade returns, budget receipts, and expenditure, etc. In 1930 the D. P. gave way to the Young Plan (q.v.), but in 1934 Germany's financial position so deteriorated that the Ger. Gov. declared a moratorium on both loans. Thereupon the Brit. Gov. announced that it would be necessary to initiate an exchange clearing arrangement by which holders of the loans might be paid with interest and an exchange agreement was eventually concluded. See C. Bergmann, *The History of Reparations*, 1927.

Dawkins, Sir William Boyd (1838-1929), Welsh geologist and archaeologist. In 1862 he joined the Geological Survey of Great Britain. In 1874 he became prof. of geology and palæontology at Owens College, Manchester. His researches in connection with the cave-dwellers of prehistoric times won him a name in anthropology, and he pub. the following works: *Cave-hunting* (1874); *Early Man in Britain* (1880); and *British Pleistocene Mammalia* (1866-87). He was also connected with surveys for the proposed channel tunnel and for the discovery of coal in Kent.

Dawley, urb. dist. of England, in Shropshire, situated on Shropshire Union Canal, and in the Wellington div., 4 m. S.E. of that place. Coal and iron are worked. Pop. 7400.

Dawlish, tn. and watering-place in Devon, England, 11 m. from Exeter; a stream called Dawlish water runs through its centre. D. is a great resort for seabathers and invalids throughout the year. Pop. 4500.

Dawn, morning twilight, the period of half-light, when the sky is illuminated by the reflection of the rays of the rising sun on the clouds and dust, etc., suspended in the atmosphere before it rises above the horizon. The maximum vertical depression of the sun was early calculated by astronomers to be 18°. The time the D. light lasts is measured by the time the sun takes to pass through an arc of 18°, and varies with the lat. of the observer and declination of the sun, it being at its minimum at the equator and increasing according to the distance from that point, and being longer in summer than in winter. The colours of the sunrise at D. are not so warm as those of sunset, since the air is clear and there is less diffusion of light rays. The order of D. colours is deep red, then orange, gold, and clear bright yellow, the reverse order of

the sunset colours. The duration of D. is shorter than of twilight.

Dawson, Charles (1886-1938), Eng. antiquary. As a young man became a fellow of the Society of Antiquaries. Collected fossils of dinosaurs in the Wealden quarries round Hastings, his collection being accepted by the Brit. Museum. Continued to obtain for the museum similar specimens from Sussex for the rest of his years. His name will be remembered for his discovery, between the years 1911 and 1913, of what anthropologists know as the Piltdown man. D. found portions of the fossil skull, and in doing so discovered the remains of the earliest Englishmen known. In July 1938 Sir Arthur Keith unveiled a monolith memorial to D. in the grounds of Barkham Manor, Piltdown, to mark the place of discovery. These bones gave us the entrance to a long-past world of humanity, such as never had been dreamt of, and afforded evidence that carried the hist. of man in Sussex back to a period to which geologists assigned a duration of from 500,000 to 1,000,000 years, though since the Piltdown man was unlike any known fossil the remains set students of man's evolution the most difficult and important task that had confronted them. D. was an amateur geologist, and, by profession, a solicitor.

Dawson, Christopher (b. 1889), Eng. philosopher, educated at Trinity College, Oxford. Lecturer in the hist. of culture, Univ. College, Exeter, 1930-36; Forwood lecturer in the philosophy of religion, Liverpool, 1934; Gifford lecturer (Edinburgh) 1947 and 1948. Pubs.: *The Age of the Gods; The Making of Europe; Progress and Religion; The Spirit of the Oxford Movement; Medieval Religion; Christianity and the New Age; Religion and the Modern State; The Judgment of the Nations; and Religion and Culture*.

Dawson, George (1821-76), Eng. non-conformist divine, b. in London. He entered the ministry as a Baptist, and in 1843 went to Rickmansworth, removing a year later to Mount Zion, Birmingham. His unorthodox views led him to resign, and his followers built the church of the Saviour for him. Here he worked for nearly thirty years attracting a large number of people by his eloquence and freedom of thought. Carlyle and Emerson were numbered among his friends, and contributed to his popularity. He pub. one or two books of lectures and sermons.

Dawson, George Mercer (1849-1901), Canadian geologist, b. at Pictou, Nova Scotia, son of Sir John Wm. D. He held the post of geologist and naturalist to the N. Amer. boundary commission (1873), served on the staff of the Geological Survey of Canada, becoming director in 1895. He had charge of the Yukon expedition in 1887, and Dawson City is named after him. He was one of the Behring Sea commissioners (1891), and went to Paris on the Arbitration Board. He wrote *The British Colonies in America* (1892), and many scientific papers and reports.

Dawson, Henry (1811-78), Eng. painter, b. at Hull. With the meagre artistic

education of a dozen lessons from Pyne in 1838. D. succeeded in winning a place among Eng. artists by his wonderful skill in painting sky and clouds. In style he was an ardent follower of Constable.

Dawson, Sir John William (1820-89), Canadian geologist, b. at Plottou, Nova Scotia. He studied at Edinburgh Univ., and on settling down to educational work in Nova Scotia undertook a geological survey of the country, publishing his results in *Acadian Geology* (1855). The same year he became prof. of geology and principal of McGill College and Univ., Montreal, and in 1862 was elected F.R.S., becoming the first president of the Royal Society of Canada. In 1884 he was knighted, and in 1893 was nominated emeritus principal, prof., and honorary curator of the Redpath Museum. D. did great service to geology and education. He took a leading part in the movement for the improvement of women's education, and brought the whole school system of the prov. to a higher level of efficiency. Among his numerous works are *Archæa* (1858); *Story of the Earth and Man* (1872); *Origin of the World* (1877); *Fossil Men* (1878); *Egypt and Syria* (1885); *The Meeting-place of Geology and History* (1894); and *Relics of Primeval Life* (1897).

Dawson of Penn., Sir Bertrand Edward Dawson, first Baron Viscount (1864-1945). Court physician, son of Henry D., F.R.I.B.A., of Purley, Surrey. Educated at Univ. College and the London Hospital. B.Sc., 1888; M.B., London, 1890; M.R.C.S., 1890; M.D., London, 1893; F.R.C.P., 1903. Physician-extraordinary to King Edward VII., 1907-10; to King George V., 1910-14. Early became known as an authority on gastric affections—wrote *The Diagnosis and Operative Treatment of Diseases of the Stomach* (1908). During First World War he was captain R.A.M.C. (T.F.), commandant 2nd London General Hospital and consulting physician in France. Colonel A.M.S. and honorary member Army Medical Advisory Board, 1918, and chairman of the special committee of the Medical Research Council on Tuberculosis in Wartime. Raised to peerage, 1920; Privy Councillor, 1929. President of the Royal College of Physicians, 1931. Created a viscount, 1936.

Dawson City, cap. of the Canadian Yukon dist. and centre of the Klondyke goldfields. The tn. was founded in 1896 at the time of the first gold rush, and though partially destroyed by fire in 1899, became a well-estab. mining city, boasting sev. fine opera houses and hotels. It enjoys the services of a fleet of riv. steamers and telegraphic communication connecting it with the upper and lower Yukon. In spite of the climate, which tends to extremes, wheat, barley, and oats have been successfully cultivated there. The pop., which has been extremely fluctuating, dwindled from 30,000 in 1898 to 1000 in 1941 owing to the exhaustion of the Klondyke goldfields.

Day, tn. and arron. in the dept. of Landes, France, on the Adour. The tn.

has manufs. of pottery and liqueurs, and trades in wine, timber, and agrio. produce. There are fine medicinal springs, which have maintained a reputation for the cure of rheumatism since the time of the Romans. The name is a corruption of *Acqua*. It contains Rom. remains, castle, and cathedral. Pop. (tn.) 12,600; (arron.) 133,200.

Day, Francis (1829-89), Eng. ichthyologist, b. at Marcsfield, Sussex, who wrote some standard works on the piscatorial life of India and Great Britain. He became interested in this study while surgeon at Madras. His chief works are *The Fishes of Malabar* (1865); *Fishes of India* (1875-88); and *The Fishes of Great Britain and Ireland* (1880-84).

Day, John (c. 1574-c. 1640), Eng. dramatist, was a native of Norfolk and sizar of Calus College, Cambridge, whence he was expelled for theft. He collaborated successfully with Dekker, Haughton, and other writers of the period. His best known work is an allegorical masque, *The Parliament of Bees* (1641), in which all the characters are bees. He also wrote a pleasing comedy, *Humour out of breath* (1608). His complete works were ed. by A. H. Bullen (1881). See A. C. Swinburne, *Contemporaries of Shakespeare*, 1919.

Day, Thomas (1748-89), author of *Sandford and Merton*, b. in London, inheriting in early infancy £900 a year, the greater part of his father's estate. He was educated at Charterhouse and Oxford, and was called to the Bar, but did not practise. He was eccentric, and educated two girls with the idea of making one his wife, but the experiment failed. With his friend Richard Lovell Edgeworth he made the acquaintance of Jean Jacques Rousseau in Paris. Literature, architecture, politics, and agriculture in turn had his attention. He married Esther Milnes, an heiress. In support of the abolition of the slave trade he wrote *The Dying Negro* (1773). He was killed whilst taming a colt near Wargrave. His *Sandford and Merton* (1783-89) is a technical example of the pedagogic novel. D., like Rousseau, advocated more enlightened methods in education, and offered models of stories and improving talks with children, which were intended to make them realize the value and entertainment of science and virtue. D. is of interest for his influence on Maria Edgeworth, the daughter of R. L. Edgeworth. Her stories for children really belong to the class of didactic novels.

Day (O.E., *daeg*. Ger. *Tag*); usually means the time during which the sun is above the horizon, the period of light as opposed to darkness. In astronomy it is one rotation of the earth. The sidereal D. is the time between two culminations of a star, consistently equal. The solar D., which is measured by the sun, varies slightly, and is longer than the sidereal D., which does not alter. There is a difference of about four minutes, for by the time the sun has made one complete rotation and the earth has come back to the same place relatively, the sun has moved eastwards nearly one degree,

which necessitates four minutes' longer travelling by the earth. Only four times a year do the sundial and the clock agree, the astronomers' imaginary sun, moving uniformly, regulating the mean time (watch time), the real sun on the meridian giving the apparent time. D. varies with lat. and seasons, to the N. of the equator increasing in summer and decreasing in winter, and vice versa to the S. The apparent solar D., i.e. the interval between two successive passages, of the real sun across the meridian varies in length owing to the varying velocity of the earth in its orbit and of the inclination of the ecliptic to the equator. The difference, mean solar time minus apparent solar time, is called the *equation of time*. It is a variable quantity, and may be as high as seventeen minutes. The mean solar D. is equal in length to the average apparent solar D. throughout the year. At the equator D. and night are nearly equal, for owing to the inclination of the earth's axis to the plane of its orbit the parallel of lat. in which the sun appears to move is continually changing, at the equator alone being bisected. The Gks. counted D. from sunset, the Romans from midnight, the Babylonians from sunrise, and the Umbrians from midday.

Dayaks, see DYAKS.

Day and Night Breezes, relate to the varying direction and velocity of the wind during the different periods of the twenty-four hours. The heat of the sun reflected from the earth reacts on the surface layer of the atmosphere, the interchange causing surface winds and up-currents. These fluctuations are not so marked over water where the conditions are more uniform. Certain surface winds die down towards sunset owing to the cooling ground which lessens the tendency of the air to rise. The mean direction of the wind does not vary much throughout the twenty-four hours. Most breezes usually tend to veer slightly to the observer's right through the morning and turn back again after sunset. Small pilot balloons are used by meteorological stations to determine the direction and velocity of the wind at different altitudes.

Dayfly, or Mayfly, see EPHEMERA.

Daylesford, bor. and tn. of Australia, situated in Victoria, 26 m. N.E. of Ballarat. Gold is extensively worked in the neighbourhood. Pop. 3500.

Daylight Saving. To Wm. Willett (1856-1915), a Chelsea builder, belongs the credit for the introduction of the D. S. scheme into England, although his suggestions put forth in 1907 were held up to ridicule. The idea of summertime was first mooted in America by Benjamin Franklin, though its practice is purely an outcome of the First World War. In 1916 Germany instituted a D.-S. scheme for purposes of light and fuel economy, and this led to the Summertime Act of Britain being passed on May 17, 1916. On Sunday, May 31, the clocks throughout the country were for the first time put on an hour in advance of Greenwich time for the whole of the summer months. Other countries throughout Europe fol-

lowed suit, and America put the scheme to trial in 1917.

Although originally a war measure, D. S. was considered to have so many advantages that by a series of Acts of Parliament it was continued in England, Col. Lambert Ward being its earnest champion in the House. The royal assent was given to the Summertime Act, making it a permanent measure, on Aug. 7, 1925.

Officially summertime begins at 2 a.m. on the day following the third Saturday in April, unless that is Easter Day, when it becomes the day following the second Saturday of April. It terminates at 3 a.m. (or 2 a.m. Greenwich time) on the day following the first Saturday in Oct. During the Second World War the necessity for economising fuel and light, coupled with the inconvenience of the black-out against air raids, led to the beginning of Brit. summertime in 1940 from Feb. 25, and in 1941-44 from Jan. 1 to Dec. 31; in 1945 the period was reduced to nine months. Double summertime (i.e. 2 hrs. in advance) was in force during the summer months of 1941-45 and again in 1947.

The number of minutes that clocks are moved forward varies from 20 min. in Sarawak and the Gold Coast to 60 min. in Great Britain, Eire, France, and most other countries. The actual date on which clocks are moved forward is not standard for all countries that have adopted the expedient of D. S.

European countries have used the scheme, abandoned and revived it from time to time, and in June 1930 the Soviet Union introduced it into Russia. In America some of the states favour it, while others refuse to entertain it. The opposition to the scheme comes from agriculturists mainly, who find it inconvenient to begin milking, harvesting, and other work an hour earlier; by educationists and those with the care of young children, who find their charges cannot sleep when put to bed during the bright daylight of the summer months, and so waken unrefreshed and disorganised in the morning; by miners, hospital nurses, and others. Wm. Willett d. the year before his idea was put into operation.

Day Lily, popular name for the lilaceous genus *Heremacallis*, common to Europe and Asia. *H. flava* is a yellow-flowered species cultivated in Britain for its sweet scent, and *H. fulva* is a species from S. Europe which is given to cattle for fodder.

Day of Atonement (Yôm Hakkippûrim, or Day of Coverings) is the holiest day in the Jewish year, and is observed with complete rest from all labour, abstinence from all food and drink, in self-examination and penitence. The Yôm Kippur is always the tenth day of the seventh month (Tishri), and the fast begins at sunset on the ninth day, lasting until the evening of the tenth.

Days of Grace, see BILL OF EXCHANGE.

Dayton: 1. Cap. Montgomery co., Ohio, U.S.A., situated in the Miami valley at the mouth of the Mad R., 50 m. N. by E.

of Cincinnati. It is a leading centre of aviation research, is the home of the National Cash Register Company, and produces electric lighting plant for home use, refrigerators, aeroplane parts, etc. There is a state hospital for the insane and a branch of the National Home for Disabled Soldiers. In 1913 D. was covered with mud by a great flood and then protected by dams. The first house built there, a log cabin, is preserved as an historical museum. The city covers 17 sq. m. Pop. 217,000. 2. A city in Campbell co., Kentucky, U.S.A., on the Ohio, opposite Cincinnati, of which it is a suburb. Pop. 210,700. 3. A city of Tennessee, co. seat of Rhea co. Pop. 1700. In 1925 a teacher of science in the high school was found guilty of having violated a state law prohibiting the teaching in schools supported by the state of any theories that man is descended from the lower animals. Wm. Jennings Bryan, who was briefed by the state of Tennessee for the prosecution, d. at D. a few days after the trial.

Daytona Beach, popular holiday resort of Florida, U.S.A., on the Atlantic coast, with a motor-racing track on the sands. Pop. 22,600.

D'Azara, Felix, see AZARA, DON FELIX DE.

D'Azeglio, see AZEGLIO.

Dazimon, see TOKAT.

De Aar, tn. of Cape Prov., S. Africa, one of the prin. railway junctions of S. Africa, centre of large live-stock fairs, with a healthy climate. It is rapidly expanding. Pop. 2000, of whom 1500 are white.

Deacon (Lat. *diaconus*, Gk. *διάκονος*, an attendant, minister), eccles. officer in the Christian Church, whose offices and duties have varied greatly in different places and at different times. Their origin is connected by tradition with the appointment of the Seven (Acts vi.), but doubt is thrown on this theory by the fact that the Seven are never called Ds. in the N.T., and do not seem to have been thought of as such until the end of the second century. Allusions to the diaconate occur in sev. of the pastoral epistles, and with the development of the bishopric the office of D. became peculiarly attached to that. The chief functions of the D., as we may gather from the story of St. Laurence, archdeacon of Rome in the third century, were the care of the poor, with the collection and distribution of alms, and personal attendance on the bishop. In time these functions were lost or absorbed by the minor orders, and the D. was left merely a particular part in the church service. In the Rom. and Anglican churches the diaconate is rarely a permanent office, but is considered a step to the priesthood, whereas in the E. it retains more of its old character. Among certain Protestant bodies, such as the Presbyterians, the D. is a layman who has charge of finances, etc.

Deaconess, one of an order of women set apart for special service in the Christian Church. In Rom. xvi. 1, and 1 Tim. v. 9 *et seq.*, we find traces of the first begin-

nings of this order, and at the time of the *Apostolic Constitutions* it already formed a distinct part of the Church's organisation, and as such is mentioned in the canons of Nicea and Chalcedon. Though Ds. were ordained in much the same way as deacons, there is no trace in their duties of any sacerdotal function. In the W. Church the order was condemned at sev. councils from the fifth century onward, and fell entirely into abeyance during the Middle Ages. It has recently been revived in sev. of the reformed churches, e.g. the Anglican and Presbyterian.

Deacon of a Trade, temporary president of certain incorporated bodies in Scotland. These presidents represented their different trades or crafts in the various tn. councils before the Burgh Reform Act of 1834. This Act deposed them from their position as official members, but still permitted them to regulate the business affairs of the crafts when appointed by election. See also DEAN of GUILD.

Dead, Book of the, collection of texts, both religious and magical, written by the anc. Egyptians for the safe guidance of the soul through Amenti (the Egyptian lower world). This papyrus, or parts of it, was always buried with the mummy in his tomb. The later MSS. were very imperfect, but a pure ed. was pub. by Edouard Naville in Berlin, 1886. Excellent Eng. trans. by Le Page Rénouf, 1890, and E. A. W. Budge, 1895 and 1901.

Deadly Nightshade, see NIGHTSHADE.

Deadman's Handle, device attached to the control gear of an electric train (or lift) which ensures that the train is automatically brought to a standstill if the driver releases his grip through sudden illness. The device is in the form of a knob, which switches off the power and applies the brakes should the handle be released when on a running notch.

Dead-nettle, popular name of sev. species of plants, of the genus *Lamium* and order Labiatae, in appearance the plant greatly resembling the stinging-nettles of the genus *Urtica*. Sev. of these herbs grow in Britain as wayside weeds, the chief being white, or *L. album*; purple, *L. purpureum*; and yellow archangel, *L. galicobdolon*.

Dead Sea (Lat. *Lacus Asphaltites*, Arabic, *Bahr Lūt*, Sea of Lot), scripturally called Salt Sea, Sea of the Plains, Sea of the Arabah, is a lake near the S. extremity of Palestine, lying between that country and Transjordan. Its length is 46 m. and its greatest breadth 9½ (average 8½) m. The long oval of the lake is unequally divided by the E. Lisan peninsula, of loose calcareous formation. N. of the peninsula the greatest depth is 1278 ft., S. of that it is only 3 to 12 ft. It receives the Jordan and six other rivs., but has no outlet, the surplus water being carried off by evaporation. The water is intensely salt, with a specific gravity one-sixth greater than water. Fish cannot live in the lake, but it has a therapeutic reputation for lepers, and the inhab. on the banks are quite healthy. It is surrounded by steep cliffs of bare lime-stone, rising to a height of 6000 ft., and masses of sulphur

exposed by periodically occurring earthquakes lie on its borders. There is a considerable business in the exploitation of its salt deposits, and potash, bromine, magnesium, etc.



E.N.A.

THE DEAD SEA

In the background are the mountains of Judæa.

Dead Sea Apple, see APPLE OF SODOM.

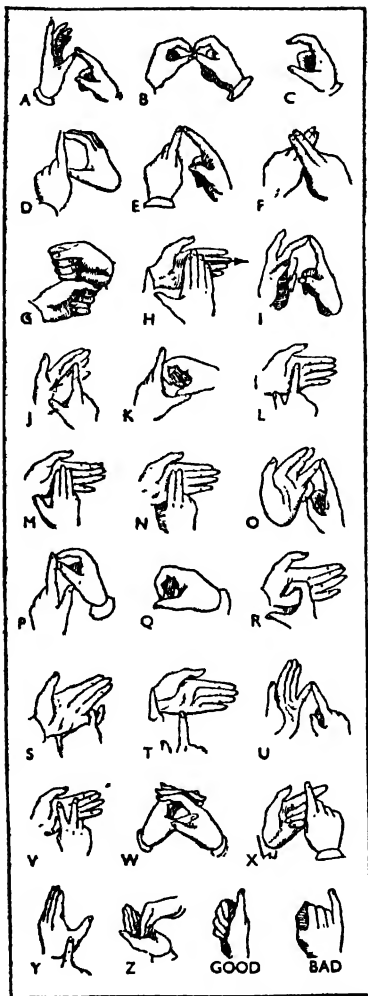
Dead's Part, Scots law, the remaining portion of the movable estate which alone may be bequeathed by will. Where the deceased leaves a widow and no children the widow takes one-half as her *jus relictæ*, and the other half is D. P. If he leaves a child or children and no widow, half goes to the issue as their *legitim* and half is D. P. If he leaves widow and children, one-third is D. P., the residue going equally to the widow and children. If he dies childless and unmarried every part of the estate is D. P. The same principles apply in the case of a wife leaving movable estate. The D. P., if undisposed of, devolves on the next of kin.

Deadwood, co. seat of Lawrence co., S. Dakota, U.S.A., in the extreme W. of that state. It is the trading centre for the gold, silver, lead, and tin mines of the Black Hills. Was founded in 1876, and owns some buildings of architectural interest. Pop. 2800.

Deaf and Dumb, or Deaf-mute. Deaf-mutism or deaf-dumbness in the sense in which it is used in this article denotes (1) the congenital deafness which arises from some original malformation of the ear and which is always accompanied with dumbness; (2) deaf-dumbness attributable to post-natal causes. Acquired deaf-dumbness, which for the most part follows on some febrile disease in very early life, is of importance from the dactylogological standpoint, but in cases where deaf-mutism has occurred later in life it is obvious that the subject may well have learnt the arts of speech and writing before his affliction, and for that reason does not present the same problem to educators as the congenital deaf-mute. Complete deafness is by no means essential as a cause of com-

plete dumbness; a small amount of deafness may well eventuate in dumbness. Etiologically inheritance is a potent cause of deaf-mutism; the intermarriage of deaf-mutes and consanguineous marriages are mainly responsible for its production. The prin. causes of non-congenital deafness are those which produce some inflammatory affection of the middle ear. The most prolific sources are scarlet fever, and, in a less degree, meningitis, measles, fevers, catarrhs, abscesses, small-pox, and erysipelas. It frequently happens that mental disorder is in some way connected with deafness, and the importance of an efficient means of education is apparent from the fact that D. and D. children, if uneducated, have perforce to be classed among imbeciles. It appears to be a psychological fact that without special education some form of mental disease will assuredly follow. A morbid condition of the mind must almost certainly eventuate where the deaf-mute, to however great an extent he may be susceptible to external impressions, is utterly unable to formulate coherent ideas from never having had his intellectual faculties developed by communication with other and unaffected human beings.

In 1840 the proportion in Europe of deaf-mutes to the pop. was 1 to 1537; in England 1 in about 1600. But happily it is demonstrable that the proportion is becoming less every year, a result due to the more scientific treatment of the various causes. In the decennial periods from 1851 to 1891 the proportions for the United Kingdom were respectively 1 in 1550; 1 in 1430; 1 in 1642; 1 in 1694; 1 in 1814; 1 in 1879. It is higher in Ireland than in the rest of Great Britain, and higher in Scotland than in England and Wales. The statistics, however, are not altogether conclusive, because many persons refrain from disclosing their affliction to the census authorities. The schedules did not require the 'deaf only' to state that fact, while on the other hand many were included in the category who properly belonged to the feeble-minded or aphasic dumb-classes. It was estimated in 1934 (according to the conference of the Brit. Medical Association) that 40,000 persons in Great Britain were totally deaf, and a further 2,500,000 partially deaf, either from acquired deafness or defective hearing in one or both ears. (In 1936 out of about 58,000 applications for enlistment in the Brit. Army 411 per 1000 were rejected for various physical and medical defects, and of these about 56 per 1000 candidates on account of diseases of the ear.) At the present day there are 50 schools for the D. and D. in England and Wales, and 10 in Scotland. Education is compulsory among the deaf in England from the ages of 5-15, in Scotland it is *permissive* from 3-18. In Eire it is not compulsory for the deaf to attend school. There are schools in almost every other country in the world, although in some cases, notably China, Japan, India, and countries in S. America, the provision made is altogether inadequate. In regard to the instruction of



British Deaf Times

TWO-HANDED ALPHABET

the D. and D., it is to be noted that those instructed include for the most part persons whose vocal organs are perfect, but who from deafness are ignorant of the way to articulate the sounds of speech. Again the pupils comprise many who are not completely deaf. Deafness occurs in every degree and in some cases amounts only to an insensibility to the sharper notes of sound. This fact is carefully borne in mind by teachers when considering

individual cases. But, of course, dactylogy or the manual communication of ideas is a science invented mainly in the interests of the more or less completely deaf, who, from never having heard a word spoken, are for that reason unable to use their vocal organs for speech. To such a person any language is a foreign language, and this has always been strongly impressed on all teachers of the D. and D.

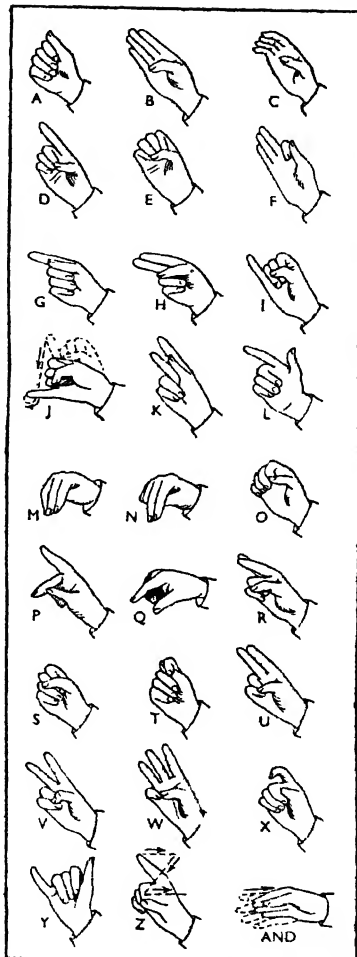
Many of the early systems of teaching were faulty from the very ignorance of this important fact, e.g. the celebrated Abbé de l'Épée estab. through dactylogy and articulation some connection in the mind of the pupil between certain methodical signs and the language of their country, but it was by no means estab. that he effected a subjective connection between those signs and the ideas which they were intended to represent. Nevertheless he attained considerable success, and his principles were carried further by his successor, the Abbé Sicard, and the basis of his teaching in signs is that of the chief modern systems. Signs are the natural language of the D. and D., but the attainment through signs of abstract thinking and conceptions is impossible unless a clear distinction is kept in mind between explaining a language and expressing it. The thoughts must first be awakened, and generally by signs as the most or only natural method; and when awakened those thoughts must be shaped in language by some manual alphabet or form of writing. Down to the sixteenth century there was next to no serious effort in the direction of instructing the D. and D. It was the common assumption that instruction by means of language was limited to those who could hear. Nay more, it was generally believed that deaf-mutes were naturally more debased than other men, both in intellect and morals. Even Whately, the logician, was capable of asserting that a deaf-mute, before being taught a language, was as incapable of carrying on a train of reasoning as a brute. Doubtless many of the D. and D. are intellectually and morally inferior, and remain habitually credulous, childish, of shallow sentiments, and scarcely susceptible to the emotions of pity or gratitude. But as indicated above, this is not necessarily so; some pupils have even attained to celebrity, notably Massieu, the pupil of Sicard. In England shortly before the pub. of Dalgarno of his treatise, the art of instruction of the D. and D. was advanced by John Bulwer and Dr. Wallis. Contemporaneously with those D. and D. philologists, Montans, van Helmont, and Anman were occupied with its study in Holland; and in Germany, though later, Kerker, Arnoldi, and Heinicke were devoting attention to the subject. It was in France, however, that the greatest strides were made, as indeed was the case in the instruction of the blind (see BLIND), and the work of de l'Épée and Sicard, however incomplete, cannot be over-estimated. In England, after Dalgarno's time, the art slumbered for many years. It was revived by Henry Baker, the naturalist, and in the middle of the

eighteenth century Thomas Braidwood opened an academy in Edinburgh. Braidwood's success was remarkable. He opened another school in Hackney in 1783, and his sons opened other schools in Edinburgh in 1810 and Birmingham in 1825. The first public school for free instruction of the D. and D. was opened in Bermondsey in 1792, and of this school Dr. Watson, nephew of Thomas Braidwood, was head instructor for thirty-seven years. With the development of a more enlightened social system the days have long since passed when the duty of instructing the D. and D. was left to individual effort alone. The Elementary Education Acts, 1870 to 1891, make provision for the compulsory elementary education of defective children, including in that term the deaf. The London County Council makes special provision for deaf children, having six day schools for the wholly deaf, five for the hard of hearing, and three residential schools. There are also centres where evening classes in lip-reading are held. The total number of deaf children in attendance at schools throughout England and Wales is not much more than 4000, in Scotland about 700.

Societies and institutions in England for the welfare of deaf-mutes include the Royal Society for D. and D. Children, Margate, and the Royal Association in aid of the D. and D., 413 Oxford Street, London. There is a national college of teachers of the deaf (blind and deaf school) at Stoke-upon-Trent.

The close of the First World War brought serious hardship to many officers and men who had lost their sense of hearing by war service, 33,791 being discharged on account of deafness (the numbers were fewer in the Second World War). On their behalf the Deafened Ex-Service Men's Fund was founded in 1919, with headquarters at 23 Queen Anne's Gate, S.W.1.

Methods of Instruction.—Where there is sufficient hearing the instruction may be auricular, but experience does not point to any great success in this method. Where the afflicted are completely deaf the methods must be such as appeal to the eye alone. The obvious ways of so appealing are by a sign language, representation by writing, printing, and pictures, lip-reading, and the manual alphabet. Generally speaking the two prin. methods are the manual and the oral, which utilise the above means of appealing to the eye in varying degrees. The manual and the oral may also be combined, but the combined systems have not been productive of such success as the purely manual; and the oral, which is admittedly unpopular with the deaf themselves, produces a much lower percentage of successes than the manual. In the manual method, signs are first used to stimulate thoughts, and the thoughts are given vernacular expression to in the mind of the pupil by finger-spelling and writing. In Great Britain the two-handed, in Europe and America, for the most part, the one-handed, manual alphabet is in vogue. That this method is successful may be inferred from the fact that so many



British Deaf Times

ONE-HANDED ALPHABET

pupils can acquire an average shorthand speed of communication of 130 words a minute. Perhaps the first manual alphabet pub. in England was that of Dalgarno in 1680.

So far as the single letters are concerned the system was simplicity itself. The rules were: (1) Touch the places of the vowels (see diagram) with a cross-touch with any finger of the right hand; (2) point to the consonants with the thumb

of the right hand. The present two-handed alphabet appears to have been derived from Dalgarno's finger-alphabet. The one-handed alphabet was invented in Spain, and was probably first pub. in the works of Bonet.

A dactylogogy of syllables has occasionally been employed in the instruction of the D. and D., and a system of alphabetic and syllabic dactylogogy was pub. by Dr. Deleau the younger in 1830. The application of finger-language to designate numbers is attributed to Mr. Stanbury, superintendent in a New York institution for the D. and D. Only one hand, the left, is used, the right being left free to record calculations.

The cipher is represented by the closed hand. To indicate this, the position of the hand is changed from perpendicular to horizontal; the thumb is pointed forwards for 10, the thumb and forefinger for 20, and so on to 90. Hundreds are pointed downwards; thus the thumb, forefinger, and middle finger pointed downwards represent 300. If 572 be the number to be designated, three positions are required; the five fingers are pointed downwards for 500, the little finger and ring-finger forwards for 70, and the thumb and forefinger held upright for 2. To represent thousands, the left hand is placed across the body towards the right shoulder, and the signs which were used in front for units in this position represent thousands. Variations of position with the same signs are adopted for tens of thousands and higher numbers. Though complex in description, the whole is easy and comprehensive in operation. In the oral method, although reading and writing may be utilised as in the manual, the prin. means employed are articulation and lip-reading. The sounds of letters as opposed to the names are taught through the medium of lip-formation; but, of course, the names must be taught where different pronunciations of the same letter are to be conveyed. Articulation, which in this connection denotes the teaching of deaf-mutes to speak and to comprehend speech by merely watching the motion of the vocal organs, seems to be as old as the time of Bede. Not one pupil in thirty attains any appreciable degree of proficiency by this method, and in all probability it requires in the pupil a higher degree of intelligence. Much patience and kindness on the part of the teacher are absolutely essential. The speech, such as it is, of the deaf-mute (who must, of course, be of that class who are not completely dumb) is artificial, constrained, and laborious, and generally too loud and discordant from the obvious fact that he cannot hear himself speak and has never heard any one else speak. The system has never been a really serious rival to the art of dactylogogy, although opinion has differed on the question whether articulation is indispensable to the acquisition of thought. Ger. teachers think it is, Eng. teachers for the most part are of the opposite opinion. The Amers. seem to hold a middle view.

Occupations of Deaf-mutes.—These are

necessarily wider than in the case of the blind (*q.v.*). Indeed only those in which speech and hearing are indispensable are closed to them. As an indication of the strides made in their education it may be instructive to note the following diversity of occupation: bookbinders, carpenters, cigar-makers, cutlers, gilders, hatters, jewellers, law-writers, optical and philosophical instrument makers, and printers of all kinds. Some have attained distinction in the highest branches of oil and water-colour painting, while one, at least, became a sculptor of great ability, and another a conveyancing barrister. Two Amer. women, Laura Bridgeman (1829-89) and Dr. Helen Keller (*b.* 1880) (*q.v.*) are noted for their triumph over their disabilities. The census returns, of course, show that the highest proportion are engaged either in non-productive and indefinite, or in industrial occupations; but none the less many have found employment in commercial and professional circles.

Mechanical Aids to Hearing.—Numerous devices, known as deaf-aids, have been invented, and have reached a high degree of efficiency. A deaf-aid incorporating the results of all the latest research was commissioned by the Brit. Gov. in 1947 for manuf. and distribution under the National Health scheme. The U.S. Bell Telephone laboratories have developed a system of visible speech transmitted from a microphone to a television screen, each inflection or sound being pictorially reproduced in the form of spurts or splashes. The users can quickly learn to identify the shapes of the spectrograms as words, for each sound has its own striking and divergent form. See also GALLAUDET, THOMAS HOPKINS. See KERR LOVE, *Deaf-Mutism*, 1896; G. S. Haycock, *Education of the Deaf in America*, 1926; M. Clark and G. Crowden, *The Employment of the Deaf in the United Kingdom*, 1937-38; and National Institute for the Deaf, *All about the Deaf*, 1939.

Deafness, see EAR.

Deák, Ferencz (1803-76), famous Hungarian politician, an eloquent speaker, and devoted patriot. Elected to the National Diet (1832), he soon, as leader of the Liberal opposition, promoted measures for the amelioration of the peasant's lot, and the reversal of the law exempting the nobility from taxation. He was appointed minister of justice in Count Batthyány's Cabinet (1848), but resigned his portfolio when a committee was formed under Kossuth. Returned to the Diet by Pesth (1861) he became leader of the Moderate party, and drew up the famous address to the Emperor Francis Joseph, demanding the restoration of the constitution of 1848 and an independent Hungarian ministry. The pre-1918 dual system of monarchy estab. between Austria and Hungary, after Austria's defeat in the war of 1866, was the result of his tactful policy.

Deakin, Alfred (1856-1919), Australian statesman and orator, *b.* at Fitzroy, Melbourne; son of Wm. D., a native of Towcester, Northamptonshire, accountant to

a firm of coach proprietors. Educated at Melbourne Univ. Admitted to the Bar, Sept. 1877. Contributed non-political articles to the *Age* and the *Leader*. He represented Victoria in the Imperial Conference at London in 1887, and took a leading part in the cause of Australian federation as a member of the National Australian Federal Convention (1897), and of the Federal Council of Australia. He visited England a second time in 1900, as one of the Australian representatives in connection with amendment of the Commonwealth Bill. He succeeded Sir Edmund Barton as Premier of Australia, and held office three times between 1903 and 1910. Was appointed to represent the Commonwealth in the Imperial Conference, 1907. His works include *Irrigation in India* (1892); *Irrigation in Australia* (1893); and *Temple and Tomb in India* (1894). He was a Protectionist-Liberal-Imperialist: it is claimed for him that he was an imperialist before Rudyard Kipling began to boom imperialism; and for many years he preached the now settled dogma, 'White Australia.' Retired 1912, and in his last years suffered from loss of memory.

Deal (the valley, a form of Dale), seaport and watering-place in Kent. It is one of the Cinque Ports, and Walmer Castle, 1 m. to the S., is the official residence of the lord warden. The justices of the Cinque Ports still sit here. Henry VIII. built three castles in the neighbourhood: Walmer, Sandown, and D. Sandown Castle, at which Col. Hutchinson, governor of Nottingham Castle and tn. for the parliamentarians (see HUTCHINSON, JOHN), d., had to be destroyed as dangerous owing to the incursion of the sea. The N. portion is now groyned by the case system. D. was never a commercial port. It came into being when Sandwich harbour silted up in late mediæval times, and which for the same reason succeeded that of the Rom. Richborough. D. has no natural harbour, but lies along a steeply shelving bank up which could be hauled the small vessels ('hobbies') serving it. D. flourished as the landing and embarking point for the downs (with fishing as a side-line for its pop. of boatmen), and consequently grew up along the foreshore on the sites and lines occupied by mediæval seamen's huts. Its prosperity was coeval with sail and reached its peak in late Georgian times. The inhab. to-day are employed in boat-building, sail-making, and piloting, and are proverbially courageous. The par. church was not built till 1726, and is a square early Georgian building of simple merit, previous to which the very picturesque church of Old or Upper D. served the par. Old D. proper lies about a mile inland. There is a newer D., formerly known as Victoria Town, adjoining it to the S. in the vicinity of the castle built by Henry VIII. The intermediate area, formed by Middle Street, Coppin Street, Griffin Street, Dolphin Street, etc., is the historical D. It is proposed to redevelop the area extending from the sea front to the E. side of Middle Street, and along

the front from Brewer Street in the N. to Broad Street in the S., including the seaward ends of King Street and Broad Street. A part of this area was severely damaged by Ger. bombers in the Second World War. Pop. 14,000.

Dealfish, genus of deep-sea fish, of the sub-order Acanthopteri. Seven or eight species are known in European waters. The *vaagmaer* from Norway and Iceland is found sometimes round the coasts of Scotland. It is about 4½ ft. in length, and silvery in colour.

Deal (Wood), div. of a piece of timber, generally by sawing. It is a term usually applied to fir planks. It is obtained from *Pinus*, a genus of coniferous trees, several species of which yield valuable timber. From Scotch fir we get Russian D.; from *Pinus Strobus* white pine or D. from the U.S.A.; and there is also a species of yellow pine, which is exported from Russia, Norway and Sweden, and N. America, and is extensively used in house carpentry and shipbuilding. The planks are as a rule 7 in. wide, and in length varying over 6 ft.; less than 6 in. wide they are called battens. Under 6 ft. long they are D ends; 1½ in. thick, whole D.

De Amicis, Edmondo, see AMICIS.

Dean (Lat. *decanus*, from Gk. δέκα, ten), title of various eccles. functionaries. The title was originally derived from a Rom. civil officer of whom we find mention under Theodosius and Justinian. Its first use is found in the monasteries, where the *decanus* had the supervision of ten monks. When the canonical life was introduced among the clergy in residence at the cathedrals, the same title was often applied to the head of the chapter. Mention of an archipresbyter, a somewhat similar officer attached to a bishop's staff, occurs in the time of St. Jerome, who uses the term in his fourth epistle to Rusticus. The D. of a cathedral has entire charge of the fabric of the building, the arrangement of the services, and the management of property. There are also certain *Ds. of peculiars*, who have charge of particular churches not under episcopal supervision, such as the church of Battle in Sussex and the chapel royal. *Rural Ds.* have held office in the Eng. Church from very early times. Their duty is to attend to the concerns of parts of a diocese and report thereon to the bishop. The bishop of London is D. of the prov. of Canterbury. In the Rom. Church the D. of the Sacred College is the cardinal who has held rank longest. The office is generally held by the bishop of Ostia and Velletri.

Dean, East and West, pars. of W. Gloucestershire, England, forming part of the Forest of D. Much coal and iron ore abound, also clay, building stone, and ochre. Pop. of E. D. 15,000, and W. D. 12,000.

Dean, Forest of, tract of land and national park in W. Gloucestershire, England, situated in the Severn and Wye valley. It was a royal forest, and much of the timber was cut down by order of Charles I., but it was reafforested by order of Parliament after the Restoration. A

great portion of its timber was formerly utilised for the navy. It is divided into six walks of oak, beech, elm, etc. Much coal and iron abound throughout the forest. An account of the F. of D. has been pub. by H.M.S.O. as a national park guide.

Dean of Guild, in former days head of the numerous trade guilds in Scottish burghs. His function was to act as arbiter in all mercantile and maritime affairs within the burgh. His present powers consist mainly in regulating the erection of suitable buildings and condemning those unfit for habitation. See also DEACON OF A TRADE.

Deane, Richard (1610-53), Brit. admiral and general at sea. In 1644 he fought with the parl. army in Cornwall, and was also present at the battles of Naseby, Preston, and Worcester. He was appointed joint commander with Blake and Monck in 1653, and lost his life at the first battle off the N. Foreland.

Deane, large par. of Lancashire, partly in the bor. of Bolton. It is situated on the Lancashire coalfield, and there are cotton mills and bleaching works.

Deat, Marcel (1894-1945), Fr. politician, b. at Guérigny in Nièvre. Deputy in 1928, and minister for air in 1936, he accepted office under the Vichy Gov. in 1940, and founded the so-called 'unity' party, the Rassemblement National Populaire. He was executed for treason after the liberation of France.

Death. Under BIOLOGY it is pointed out that there is a continual change proceeding in every cell of any organism, waste matter being carried off and new deposited. Thus the cells of any organism are continually dying, and D. in this molecular sense is an essential to life. But it inevitably follows that, because of this process of metabolism, D. in the larger sense, i.e. the D. of the entire organism, must ensue. Thus D. would occur *naturally* by the gradual decay of the organism as in old age, but most organisms do not die in this way. The majority of Ds. are *accidental*, being caused by disease or violence. And D. thus caused must begin, as Bichat said, at the heart, the head, or the lungs. But these three *vital* organs, the heart, brain, and lungs, are mutually dependent, and while D. may be immediately caused by the failure of one of them, yet that one may have failed through an impairment in the functioning of another. D. from failure of the heart may be sudden, as in *syncope*, or gradual, as in the action of some poisons. Or, again, it may occur because the blood is insufficient in amount to excite the heart, as in the case of *anæmia*. D. from failure of respiration, or *asphyxia*, again, is chiefly due to violence, although certain poisons and *letanus* may cause it. D. which begins at the brain, or D. by *coma*, is caused either by violence, or by the action of poisons, or by the formation of clots of blood in the vessels.

The signs of approaching D. are sometimes well marked, as in natural D. from old age, by a vacancy in the intellect, and an atrophy of the senses and sentiments.

Again, delirium and even dementia, or imbecility, are often precedents of D. Similarly, the muscles relax, and are incapacitated, the voice becomes low, and the heart either begins to fail gradually, the pulse becoming faster but weaker, or it may beat irregularly though not weaker, or it may suddenly contract violently and stop. The respiration again may be hurried and panting, or slow and laborious, while the 'death rattle,' as it is commonly termed, is caused through the passage of air from the lungs through the fluid (mucus) which has collected in the air passages. The signs of actual D. are: (1) *The extinction of the vital functions*. The cessation of circulation and respiration may not always signify D., for they may, as in drowning and in newly born infants, be entirely suspended for a while and then restored, or they may even be reduced so low that while they have not ceased they may yet be incapable of detection. Loss of heat is a tolerably certain sign, although in exceptional cases the temp. may rise after D. Certain signs of D., however, are the loss of contractility of the muscles on application of a galvanic current. (2) *Changes in the tissues*. The most important of these is, of course, the *rigor mortis*, which, commencing in the neck and trunk, proceeds through the upper and then the lower extremities, finally passing away in the same order after from twenty-four to thirty-six hours, is a sure sign of D. (3) *Changes in appearance*. These are well marked, but the chief are the lividity of various parts of the body, and the appearance of a green tint on the skin of the abdomen, accompanied by a separation of the epidermis.

For conceptions of D. held by primitive and civilized races, see BURIAL CUSTOMS; IMMORTALITY; PHILOSOPHY; RESURRECTION; TRANSMIGRATION, etc.

Death Duties. These include, since the passing of the Finance Act, 1894, and the Finance (1909-10) Act, 1910, estate duty, legacy duty, succession duty, and increment value duty. Where the deceased d. on or before Aug. 1, 1894, his estate was liable, in addition to legacy and succession duties, to probate duty, account duty, and an additional duty imposed by the Customs and Inland Revenue Act, 1889. In extension of both estate and succession duties. The effect of the Act of 1894 was to supersede probate duty and account duty by estate duty, and to fix a date for the expiration of the additional duties imposed by the Customs and Inland Revenue Act, 1889.

Estate Duty is a comparatively new duty imposed by the Finance Act, 1894, as amended by subsequent Acts. It supersedes probate duty, account duty, additional succession duty, the temporary estate duty imposed in 1889, and 1 per cent legacy or succession duty. Although it is a substitute for probate duty, it taxes property which escaped the latter duty altogether. It is payable whenever property changes hands on death without regard to its ultimate destination, and the amount of the duty is unaffected by any

testamentary disposition. It is also leviable on personal property situate abroad where the deceased was domiciled in the United Kingdom. It is calculated on the principal value (i.e. for all practical purposes the market value at the date of the death of deceased) of all property, real or personal, settled or not settled, which passes on death. It is not imposed on estates which do not exceed £2000, and the rate of duty payable is shown below: In the case of every person dying after April 10, 1946, where the principal value of all property, real or personal, settled or not settled, passing on the death of such person,

exceeds:	per cent	exceeds:	per cent
£ 100	1	£ 75,000	23.4
500	2	85,000	24.7
1000	3	100,000	26
5000	4	120,000	28.6
10,000	6	150,000	31.2
12,500	7.2	200,000	33.8
15,000	8.4	250,000	36.4
18,000	9.6	300,000	39
21,000	10.8	400,000	41.6
25,000	12.0	500,000	44.2
30,000	13.2	600,000	46.8
35,000	14.4	800,000	49.4
40,000	15.6	1,000,000	52
45,000	16.8	1,250,000	54.6
50,000	19.5	1,500,000	58.5
55,000	20.8	2,000,000	65
65,000	22.1		

Estate Duty in respect of agric. property is to be charged in part on agric. value at the rates set out in the Finance Act, 1919, in lieu of the above rates. (Small estates up to £300 and £500 gross are charged, at the option of the accounting parties, either by the above scale, or with fixed duties of 30s. and 50s., and are exempt from all other D. D.).

Liability to the duty depends on whether the property passes or can be deemed to pass on death, the duty being leviable, not by reason of some person *succeeding* to it on the death, but on account of a *change of possession* consequent on the termination of an interest by reason of the death. Property passing on the death of the deceased embraces property of which the deceased was competent to dispose at his death and property over which he had no power of disposition. The latter category relates principally to settled property in which the deceased or any other person had a limited interest ceasing at the death of the deceased, and the duty is aimed not at that limited interest, but at the property out of which it was carved, and the quantum of property taxable depends on the extent to which a benefit accrues by the cesser of such limited interest. Property in which the deceased or other person was only interested as holder of an office or as trustee, or recipient of the benefits of a charity, or as a corporation sole (see CORPORATION), are excluded from the operation of this principle and are exempt from the duty. Gifts made by the deceased during his lifetime for public or

charitable purposes are charged unless they were made more than twelve months before death; other gifts are charged, unless made more than three years before death; gifts made in consideration of marriage, or as part of deceased's reasonable normal expenditure, are excepted. Gifts not exceeding £100 in the aggregate in value or amount are also excepted.

Before the Finance Act, 1896, the duty was leviable on the cesser of an interest created by the settlor himself where the property reverted back to him; that Act, however, excludes property reverting to a settlor on the determination of a life or other limited interest created by him; property of which the settlor acquires the immediate reversion by reason of the determination of an intervening life-estate created by him in succession to a prior settlement on himself for life, and rents of real or leasehold property to which the deceased was entitled in right of his wife and which pass to his widow. The Finance Acts, 1894, 1896, and 1910, create a number of exemptions in addition to those indicated above; among which are included property of common seamen or soldiers dying in service, works of art given to the nation, and pensions or annuities payable by the Indian Gov. to the widow or child of a deceased officer of such gov. Property given absolutely before the death of the donor for the use of his majesty is exempt. Under the Finance Act, 1937, land given to the National Trust is also exempted—subject to a number of highly technical conditions set out in the Act. Reference should also be made to the provisions in the Finance Act, 1938, governing estate duty on cesser by death of a limited interest in unascertained residue. The legal personal representative of the deceased is responsible for the duty on the property of which the deceased was competent to dispose, and he must pay it out of the residuary personality. The duty on property over which the deceased had a general power of appointment is only payable out of the residue when the power has been exercised and an executor appointed; if not, it is payable ultimately by the person to whom the property passed in default of appointment, and may be recovered from such person by the executor. In all other cases estate duty is payable by the persons to whom the particular property eventually goes, whether it be paid in the first instance by the executor or other personal representative or not. For the purpose of ascertaining the *rate* of the duty on each part of the property, the principal values of the different parts, subject to certain exceptions, are aggregated. The exceptions are property in which the deceased had no interest; real and personal property the combined value of which does not exceed £1000 exclusive of property settled otherwise than by his will, and objects of scientific or historic interest settled on different persons so as to be enjoyed by them in kind successively. In computing the principal value, a deduction may be made for funeral expenses.

debts, and incumbrances. The duty on real estate may be paid by eight yearly or sixteen half-yearly instalments, and that on certain annuities may at option be paid in four yearly instalments, 2 per cent interest being charged on all unpaid portions of duty starting twelve months after death, and part of the land liable to estate duty may be accepted by the Treasury in lieu of the duty. There are many refinements on the law of estate duties in the Finance Act, 1940, and reference should be made to that Act, Part IV., inasmuch as the provisions are of a highly technical character. Under that Act, where a life interest has been disposed of or determined (otherwise than by the expiration of a fixed period at the expiration of which the interest was limited to cease) such interest will be regarded as included in the property passing on the death; but where the disposition or determination was bona fide effected or suffered (as the case may be) three years before the death (or, if it was effected or suffered for public or charitable purposes, one year before the death) then the interest will not be included in the estate of the deceased. There is another important series of provisions in the Act affecting shares in companies. Where a person, dying after the commencement of the Act (June 27, 1940), has made to a company a transfer of any property (other than an interest limited to cease on his death or property which he transferred in a fiduciary character), and any benefits accruing to him in the three years ending with his death, the assets of the company will, for the purposes of estate duty, be regarded as included in the property passing on his death, or, in other words, will be a charge on the company's assets, to an extent calculated by reference to the proportion that the aggregate amount of the benefits accruing to the deceased from the company bore to the net income of the company. There are a number of sections in the Act (and some amendments in the Finance Act, 1944) governing the mode of valuation for estate duty of shares and debentures of companies whose assets fall within the scope of Part IV. of the Act. The following are the sums which have been paid into the national exchequer under estate duty in the given year ended March 31: 1935, £71,590,996; 1936, £78,136,523; 1937, £79,980,756; 1938, £78,541,472; 1939, £82,659,843; 1940, £89,045,451; 1941, £99,769,090; 1942, £108,559,893; 1943, £135,925,929; 1944, £156,622,912.

Legacy duty is a tax on the interest of the individual and beneficiary in personal property devolving under a will or on intestacy. The personality liable to legacy duty excludes leaseholds and moneys to arise from a sale of real estate (see CONVERSION), but includes all other personality and real property regarded in equity as already converted into money. Where the value of the whole personal estate is under £100 no duty is payable. Specific legacies under the value of £20 are not liable, and there are a few other

exemptions. Where a legacy is expressly given free of duty, the duty is payable out of the residuary personality. In all other cases it is deducted by the executor, or other personal representative, from the amount of the legacy or share accruing to the legatee or next of kin. The duty is a percentage on the value of the legacy calculated according to the degree of the relationship between the testator and the legatee as follows: husband or wife and lineal ancestors or descendants, 1 per cent; brothers and sisters or their descendants, 5 per cent; all other legatees, including strangers, 10 per cent. Under the Finance Act, 1910, the husband or wife of the testator, or intestate, is exempt where the estate does not exceed £15,000 in value whatever may be the value of the legacy given to the surviving spouse. No duty is payable by the surviving spouse on a legacy under £1000 in value whatever the value of the whole estate, nor by the widow of the deceased, or a child under twenty-one on a legacy under £2000.

Succession duty is also a tax imposed on the interest of the beneficiary. It is chargeable on every succession to real or personal property, except as to personality liable to legacy duty. Leaseholds are liable to succession but not to legacy duty. Succession duty, like legacy duty, is payable only on property coming under the jurisdiction of the courts of the United Kingdom. For the purposes of succession duty, the date of the instrument conferring the succession is immaterial. The duty is not payable, in the case of real estate, devolving to heirs or devisees, until the beneficiary becomes entitled in possession. No duty is payable where the principal value of all the successions is under £100. The rates, which are calculated according to relationship, as in the case of legacy duty, vary according to the date of the death of deceased. If the deceased *d.* before July 1, 1888, the rates are the same as those for estate duty, provided the property in question be also liable to estate duty. If not liable to estate duty, and the deceased *d.* after July 1, 1888, the property is liable to the additional rates imposed by the Customs and Inland Revenue Act, 1888. The rates would then be: 1½ per cent in the case of husband or wife, lineal ascendants and descendants, 4½ per cent brothers and sisters and their descendants; 6½ per cent uncles and aunts and their descendants; 7½ per cent great-uncles and great-aunts and their descendants; and 11½ per cent in other cases. Where the deceased *d.* between June 1, 1889, and June 1, 1890, and the value of the succession is over £10,000, an additional duty, imposed temporarily by the Customs and Inland Revenue Act, 1889, at the rate of 1 per cent, is payable. Leaseholds passing under a will or on intestacy and property liable to account duty are exempt from both the additional rates imposed by the Act of 1888 and the 1 per cent temporary estate duty, provided, in the latter case, the temporary estate duty has actually been paid. Where an illegitimate child (or the spouse

or issue of an illegitimate child) takes any interest in real or personal property under the intestacy of the mother of the child or under a disposition made by her; or where the mother of an illegitimate child takes an interest in real or personal property under his intestacy or under a disposition made by him (or his issue); then, any succession or legacy duty which (after 1944) becomes leviable in respect of the taking of the interest, will be payable at the same rate as if the child had been born legitimate.

The method of valuing successions to realty before the Finance Act of 1894 was to capitalise the beneficiary's interest as if it were in the nature of an annuity equal to the ann. value of the property; this was done, although the beneficiary was entitled to more than a life estate, on the principle that whatever the quantum of his estate, he could not enjoy the succession for a longer period than his own life. Since 1894, i.e. where the succession arises on a death occurring after Aug. 1, 1894, and the beneficiary is competent to dispose of the property, the duty is charged on the principal value after deducting the amount of estate duty. The duty in either case is payable by eight equal half-yearly instalments, the first being due at the end of twelve months from the date of the beneficiary entering into possession. As in the case of estate duty, the person liable may agree with the Treasury to pay the whole or part of the duty in the form of real or leasehold property. In the case of a succession to personality, the beneficiary of an interest limited to him for life only pays duty on the principal value of the ann. income. If entitled absolutely, he pays on the principal value, and the duty becomes payable immediately. The incidence of the succession duty has been particularly severe in the case of large landed estates, and where a number of deaths occur in the same family within a relatively short term of years the amounts paid by each successor are enough sometimes to cripple the estate for years. To avoid this heavy incidence there has been during the past decade or two a tendency to turn large estates into limited liability companies divided into so many shares which are usually held by members of the family, who are beneficiaries under the will. By this means large sums are saved in succession duties, but legislation has been recently passed to restrain what was really tantamount to a palpable evasion of the duty. The fact remains, however, that the severe taxation to which large landed estates have been subjected in late years has led to a breaking up of these estates, and a phase of social life which has lasted for sev. centuries in England is slowly but surely passing. The following are the sums which have been paid into the national exchequer as legacy and succession duties in the given years ended March 31: 1935, £9,593,152; 1936, £9,813,765; 1937, £10,800,726; 1938, £10,521,065; 1943, £10,586,686; 1944, £10,931,544; 1945, £11,200,900; 1946, £9,708,629; 1947, £11,483,716; 1948, £12,552,344.

In the 1949 budget it was proposed to consolidate the existing estate duty, legacy duty, and succession duty into a single duty by abolishing the legacy and succession duties and compensating the Exchequer by an increase in the rates of the estate duty. It was also proposed to substitute for the existing relief in respect of the agric. value of agric. property a new relief in the form of an abatement of 45 per cent of the duty chargeable. It was proposed to raise the exemption limit for out-and-out gifts *inter vivos* from £100 to £500. For the proposed increased rates of estate duty see ESTATE DUTIES.

Death, Registration of, see REGISTRATION OF BIRTHS, DEATHS, AND MARRIAGES.

Death's-head Moth, or *Acherontia atropos*, curious species of the family Sphingidae. It is the largest Brit. hawk-moth with downy wings measuring 5 in. from tip to tip, and its body is marked as though with a skull. When it is at rest it sometimes gives out a squeaking noise, produced probably by rubbing the palpi upon the proboscis. The caterpillar is about 4 in. long and is brightly coloured, feeding on potato plants.

Death Valley, or the Amargosa Desert, gloomy tract of desert land from 100 to 250 ft. below the level of the sea, situated in Inyo co., California, U.S.A. The Amargosa R. flows into it. It has a wide variety of bird life, but plant life has only a wide-spaced precarious footing. The first atom bomb tests were carried out there. See D. C. Peattie, *The Road of a Naturalist*, 1946. (See illustration on p. 568.)

Death Watch, name of a certain class of coleoptera or beetle (*Anobium*). They are about $\frac{1}{2}$ in. long, with small, round, and convex bodies of light brown colour. They are found in old wainscoting, and the wood dust they make in the process of their burrowings can often be seen near old woodwork. When disturbed they simulate death. Many unfounded superstitions have grown up around them; the ticking noise which they make by striking the head against wood is really concerned with their reproduction.

Deauville, fashionable seaside resort in the dept. of Calvados, France, on the estuary of the Touques. In the Second World War D. was occupied and fortified by the Gers. who mined its beach, built anti-tank traps along the famous Terrasse de la Mer, and converted luxury villas and beach bars into blockhouses which formed part of Hitler's W. wall. The gardens were riddled with dug-outs and fortifications, the tennis courts were mined, and the racecourse was dug up. But by May 1946 hundreds of Ger. war prisoners had cleaned up the tn. for its first post-war season. Typical of speedily effected changes was the bar of the Normandy Hotel, whose windows had been bricked up by the Gers., which had by that time stained-glass windows, locally made, and depicting the great battles of Normandy of 1944. Pop. 4800.

De Bary, Heinrich Anton (1831-88), Ger. botanist and biologist, who made

valuable discoveries in mycology and bacteriology, demonstrating the power of parasitic growths in the production of disease. Chief works: *Die Mycetozoen* (1864); *Beträge zur Morphologie und Physiologie der Pilze* (1864-82), and *Vorlesungen über Bakterien* (1885) (Eng. trans., 1888).

De Bay, Michael, *see* BAIUS, MICHAEL.

charges its property and assets, and covenants to pay the holder the sum secured by the D. at a fixed date, together with interest up to that time. Under the Companies Acts, every D. must bear the registrar's certificate of registration. There are registered Ds. and Ds. to bearer. The first can only be transferred in the company's books. Ds.



U.S. Information Service, American Embassy
DEATH VALLEY, CALIFORNIA

Debbieg, Hugh (1731-1810), Brit. general and cadet gunner who was present at the sieges of Louisburg and Quebec under the commandship of Wolfe, and served with distinction at L'Orient (1746) and Bergen-op-Zoom (1747). A secret mission to France and Spain occupied him during 1767, and he was entrusted with the protection of London in the Gordon Riots (1780).

De bene esse, technical legal expression equivalent to 'provisionally,' and applied to the conditional doing of an act for the time being, subject to such act being disallowed on a fuller examination of its propriety. The term is particularly applied to the provisional examination of a witness before a trial where it is feared that the witness, by reason of age or illness, may be unable ever to appear at the trial (*see* DEPOSITION). A verdict taken *de bene esse* is one that may be reversed on further consideration.

Debenture (Lat. *debentur*) is etymologically the first word in a document formerly used by the Crown admitting indebtedness to its servants or soldiers. Now we mean a deed by which a company

to bearer are negotiable and pass by delivery with coupon attached for interest. It is a term used by customs officers for a certificate entitling an exporter of goods to receive bounty or drawback on exported goods.

Debit and Credit, *see* under BOOK-KEEPING.

De Bono, Emilio (1866-1944), It. general and Fascist politician, b. at Cassano d'Adda. He took part in the so-called march on Rome in 1922, was later governor of Tripolitania, and foreign minister. He commanded the It. forces in Abyssinia in 1935, and wrote an *apologia* (1936). He also wrote *Anno XIII: the Conquest of an Empire* (1937). Voted against Mussolini in 1943 and, after trial by a special court, was shot as a traitor on Jan. 10, 1944.

Deborah (Heb. 'bee'), famous Israelite prophetess and 'judge,' wife of Lapidoth, who incited Barak to free her people from the Canaanite oppression which they had endured for twenty years. She joined Barak in leading an army against the Canaanites under Sisera, and completely vanquished them in the plain of Esdraelon.

Sisora, a fugitive, was murdered in his sleep by Jacl, wife of Heber, the Kenite. The triumphant outcome of this battle ensured a long peace. The famous 'Song of Deborah' commemorating the victory is regarded as one of the oldest recorded pieces of Scripture.

Debra Tabor, or Deora Taboor, large dist. and tn. of Abyssinia, E. Africa, 35 m. E. of Lake Demben.

Debrecen, or Debreceen, cap. of co. of Hajdu, Hungary. It is the railway and commercial centre for the great plain, or steppe, E. of the Tisza, in which it is situated. Agriculture, cattle- and horse-breeding, manufs. of soap, saltpetre, and tobacco-pipes flourish. Though it is a scattered, rambling place, there are some fine public buildings, including a Protestant college, with library and museums, the finest educational estab. in the country. It is the headquarters of Protestantism and is often called Calvinist Rome. There are four ann. fairs and a famous swine market. Pop. 127,000, of whom 66 per cent are Protestant, 20 per cent Catholic, and 10 per cent Jews.

Debrosses, Charles (1709-77), Fr. lawyer and historian, b. and educated at Dijon. He became a judge in his native tn., and gained the friendship of such distinguished men as Diderot and Buffon. He wrote *Histoire des navigations aux terres Australes* (1756), employing the names of Australia and Polynesia for the first time. He contributed articles on language to the encyclopedia of Diderot and Voltaire, and collected 700 fragments of Sallust which he pub. (1777), *L'Histoire du VII^e Siècle de la République Romaine, par Salluste*.

Debs, Eugene Victor (1855-1926), Amer. railway labour leader, b. at Terre Haute, Indiana. Served as a locomotive fireman. Appointed to Indiana state legislature (1885); president of Amalgamated Railway Union (1893-97) for whom he won a strike on the Great N. Railway. Joined the Socialists in 1897. Socialist candidate for president: 1900, 1904, 1908, 1912, and 1920. From 1914 he ed. the *National Rip-Saw*, St. Louis. In 1918, being opposed to the war, he was sentenced to ten years' imprisonment for obstructing recruiting. It was during his incarceration that he was for a fifth time nominated for president. He was released in Dec. 1921. See *Life Writings and Speeches* (3rd ed.), 1910, and also M. Coleman, *Eugene V. Debs, a Man Unafraid*, 1930.

Debt, liquidated or determinate sum of money due from one person to another. D. includes an obligation to pay money on a contingency which must happen, but not where the event may not happen, e.g. a contract of suretyship is not a D. Ds. may be classified into: (1) Ds. of record, i.e. Ds. evidenced by the records of a court of a record, the principal being recognizances, and judgment Ds.; (2) specialty Ds.—that is, Ds. created by deed or confirmed by special evidence under seal, such as a covenant to pay rent on a lease, and (3) Ds. created by simple contract. Interest is payable on a D. only under an express or implied contract

to pay interest, by trade usage, under a written contract to pay money on demand or at a fixed date, on money fraudulently withheld, in the case of Ds. secured on land, under the Civil Procedure Act, 1833, where the jury allows it, and on all judgment Ds. Ds. are recoverable (a) by action in the high court, whatever the amount. Under Order XIV. of the Rules of the Supreme Court the creditor may apply summarily for final judgment by specially endorsing his writ of summons for the amount and by filing an affidavit stating that in his belief there is no defence to the action, when he will be allowed to sign final judgment unless the debtor gets conditional or unconditional leave to defend by disclosing a *prima facie* defence; (b) by action in the co. court where the D. does not exceed £100, or equitable debts, e.g. in a foreclosure action, up to £500. Actions in the high court may be remitted to the co. court where the creditor's claim is not over £100. There is an analogous procedure by default summons to the summary process in the high court. Actions on judgment Ds. and specialty Ds. are barred after twelve years, and those on simple contract Ds. after six (see LIMITATIONS, STATUTES OF). Judgment Ds. have priority over specialty and simple contract Ds. against the personal estate of a deceased debtor, unless the estate is insolvent, when, if administered by the personal representatives, rates and taxes, wages or salaries of clerks or servants up to £50, and wages of labourers or workmen up to £25, must be paid first, but if administered in bankruptcy, the three classes are payable *pari passu*. Ds. being choses in action are assignable under the Judicature Act, 1873, by writing signed by the assignor, and written notice of the assignment must be given to the debtor. There is now no imprisonment for debt, except on a judgment debt, where a debtor can pay and will not or has voluntarily put it out of his power to pay. In Scottish law Ds. charged on personality are called moveable Ds., and those charged on land heritable Ds. They are recoverable either in the court of session or the sheriff court, there being analogous provisions as to jurisdiction to those which obtain in England. Following the Rom. law actions are only barred by long prescription. The process by which a creditor is allowed to detain the goods of his debtor, which happen to be in the hands of a third party, is by arrestment.

Debt Conversion is the practice adopted by national govts. to reduce the rate of interest payable on national loans raised at periods when money was comparatively dear. Wars are the prin. causes of national debt, and in times of war govts. forced by the urgent need of raising money at very short notice, offer rates of interest which are higher than would be obtained in times of peace. And when the costly business of war is terminated, govts. are faced with long-dated loans bearing high rates of interest. Then the practice of D. C. begins. The hist. of Great Britain for the past 200 years is marked by

numerous operations of this character, and it will be noticed that the practice is most frequent after long and costly wars and in periods of cheap money. For the first conversion of Brit. national debt we must go back to the reign of Queen Anne, when a heterogeneous lot of floating liabilities was converted into £9,177,968 of South Sea Companies 6 per cent stock. The year 1760 saw a conversion of £54,413,433 4 per cent stock into the same amount of new stock. This, however, was to bear latterly the lower rate of 3 per cent. We now come to the period following the close of the Napoleonic wars, when numerous conversions took place. In 1817 the Irish debt of £103,033,750 was converted into debt of the United Kingdom. In 1822 £149,627,867 5 per cent stock was converted into £157,109,217 4 per cent stock, and two years later £70,098,935 4 per cent stock was converted into an equal quantity of stock bearing interest at 3½ per cent. In 1830 £150,790,176 was converted as to a small part into 5 per cent stock at a price of 70, and as to much the greater part into 3½ per cent stock at par. A large conversion took place in 1844, when £248,757,311 3½ per cent stock was converted into new stock bearing interest at the rate of 3½ per cent for ten years and 3 per cent for twenty years. In 1853 Mr. Gladstone, in pursuit of thrift, saw to the conversion of £3,063,906 3 per cent stock. In 1883 £70,241,908 3 per cent stock was converted into terminable annuities, and in 1884 £23,362,596 3 per cent stock was converted into 2½ per cent stock at 102 and 2½ per cent stock at 108. To Mr. Goschen belongs the credit of the last big conversion of the nineteenth century. On March 9, 1888, he brought forward in the House of Commons a plan for the conversion of the different 3 per cent stocks into one class of stock, to bear interest payable quarterly at the rate of 3 per cent for the year ending April 5, 1889, 2½ per cent for the next fourteen years, and 2½ per cent for the following twenty years ending April 5, 1923, and thereafter until redemption. This new stock was to be known as 'Two and three-quarters per cent consolidated stock' until 1903 and afterwards as 'Two-and-a-half per cent consolidated stock.' Mr. Goschen's proposals became law on March 27, 1888, and the scheme was highly successful. Coming down to more recent times, we find that the next series of conversions in Great Britain took place after the close of the First World War. After the outbreak of war in Aug. 1914, the Brit. Gov. had to borrow so heavily that on March 31, 1923, the total national debt stood at the enormous figure of £7,742,233,286. This amount included the capital liability (estimated) in respect of terminable annuities, £11,015,000 owing to the Bank of England and £2,630,769 owing to the Bank of Ireland. The extent of this liability might well have appalled the Treasury, but the process of conversion began. £255,000,000 2½ per cent consolidated stock, £137,470,000 3½

per cent war loan 1925-28, £8,000,000, annuities 2½ per cent, and £1,000,000 annuities 2½ per cent were converted into 4½ per cent war loan 1925-45 under an option extended to subscribers when that issue was made in 1915. In 1917, when 5 per cent war loan 1929-47 and 4 per cent war loan 1929-47 were issued, an option to convert was given to holders of 4½ per cent war loan 1925-45. A certain quantity of 5 per cent exchequer bonds 1919, 1920, 1921 and 6 per cent exchequer bonds 1920 were converted into the new war loans. Four per cent funding loan 1960-90 was issued in June 1919, and the option to convert was offered to holders of 4½ per cent war loan 1925-45; 5 per cent exchequer bonds 1919, 1920, 1921, and 1922; 6 per cent exchequer bonds 1920; 4 per cent national war bonds 1st, 2nd, and 3rd series. The upshot of the option was that £120,617,000 was converted into funding loan and £72,203,000 into victory bonds. In 1921 holders of national war bonds due at latest in Sept. 1925 were invited to exchange their holdings for 3½ per cent conversion loan redeemable at the earliest in 1961, and as a result bonds to the value of £163,328,133 were converted. Other large conversions followed, and on June 30, 1932, money being comparatively cheap, the gov. gave notice of its intention to redeem the whole of the 5 per cent war loan at par on Dec. 1, 1932, holders being invited to continue in the loan at the reduced rate of 3½ per cent as from Dec. 1 and to receive a cash bonus of £1 per cent; i.e. those who accepted this offer of conversion into 3½ per cent by July 31, 1932, were to receive £6 per cent for the whole year. But holders who elected to take payment in cash on Dec. 1, on which date the 5 per cent loan ceased to exist, had to notify the Bank of England of their election by Sept. 30, and holders who failed to send notification of their acceptance of the offer by Sept. 30 were to be taken as having accepted it. This conversion loan of 3½ per cent has no fixed date of redemption but the gov. has the right to redeem it in whole or in part after twenty years. This conversion scheme was estimated to save annually £30,000,000 gross and £23,000,000 net. Pre-war conversion loans repaid since Sept. 3, 1939 (in £100,000's), are summarised in exchequer returns for Aug. 1939 to Aug. 1945 as follows: 4½ per cent conversion loan 101.5; 1 per cent treasury bonds, 100; national savings bonds, 3.6; 5 per cent conversion loan 317.5; 2 per cent conversion loan 244.8; 2½ per cent national defence bonds 20; sinking fund, 80. Total sum repaid £37,400,000.

Debt, National or Public. see PUBLIC DEBT.
Debts, Interallied. At the close of the First World War (1914-18), when the Allies were freed from the tension and strain of actual fighting, the respective govts. were able to devote themselves to the solution of problems which had arisen as a consequence of four years of intense warfare. Great Britain had pledged her credit, not only on her own behalf, but

also on behalf of her Allies. She owed huge sums to U.S.A., and huge sums were owing to her. Arrangements had to be made for the settlement of these colossal debts and delicate negotiations entered upon. In 1922 the question of debt settlement was brought forward as a matter of urgency by U.S.A., which was the sole purely creditor nation amongst the Allies. This brought forth the Balfour note, addressed by Lord Balfour on behalf of the Brit. Gov. to the Fr. ambas. and to the representatives of the various European govts. which were interested. It was set out in this declaration that although Great Britain had lent more than she had borrowed, she was in the main favourable to the cancellation of the war D. which had been incurred as between the Allies. She could not, however, agree to the cancellation of D. owing to her from European nations without a similar concession being made by America in respect of Brit. D. An agreement between Britain and America was concluded in 1923 by which the Brit. debt was funded. Bonds to the value of \$4,600,000,000 were issued dated Dec. 15, 1922, and maturing Dec. 15, 1934, interest being payable half-yearly at the rate of 3 per cent per annum from Dec. 15, 1922, to Dec. 15, 1932, and thereafter at the rate of 3½ per cent per annum until the principal should be repaid. The agreement provided for the repayment of the principal by ann. instalments increasing from \$23,800,000 in 1923 to \$175,000,000 in 1934. This agreement was concluded on behalf of the Brit. Gov. by Mr. Stanley (later Earl) Baldwin. In 1927 an agreement was concluded for the settlement of the war debt of Yugoslavia to Great Britain. Funding agreements were signed in respect of all the allied war D. to Great Britain except that of Russia.

When the Nov. 14, 1932, payment of debt to America fell due, the position was: total funded debt, \$4,600,000,000; principal paid off, \$202,000,000; interest paid, \$1,149,700,000; total paid by Britain, \$1,351,700,000. Notes were exchanged without moving the U.S.A. Gov. in its determination to exact the debt. The Brit. Gov. paid \$19,500,000 in gold, intimating that the payment must not be regarded as implying a revival of the old system, but was to be taken into account when arriving at a final settlement. In 1933 the Brit. Gov. reopened talks in the hope of reaching a final settlement with America, which should not involve a resumption of the claim on Germany for reparations. The U.S. Gov. made no proposals with the result that Britain offered token payments on account of instalments falling due in June and Dec., pending a discussion of a settlement. The position in June 1934 was that Britain had paid well over \$328,000,000 to America in respect of war D. funded at \$4,600,000,000 (\$290,000,000); yet not much more than 4 per cent of the principal had been paid off. Meanwhile other countries were adopting the Brit. attitude. The Fr. Gov. in 1933 refused to pay any instalments either in June or

Dec. upon even the commercial portion of her war debt. America sent out formal notices towards the end of 1934 reminding foreign debtors of the total of \$30,945,000 (or \$154,726,976) due for the Dec. 1934 instalment. The notices included a 'bill' to Great Britain for \$117,670,765 (£23,534,000). Notices continued to be served in the ensuing years by the U.S. Gov. to the Brit. Gov., and the Brit. *chargé d'affaires* in Washington continued to make the customary declaration that the Brit. Gov. would be willing to reopen discussions 'whenever circumstances were such as to warrant the hope that a satisfactory result might be reached' (1938).

The following table of Brit. war debt settlements shows the total debts as funded and the total annuities payable to Great Britain as at the beginning of 1933:

Debtor	Total Debts as Funded £'000	Total Annuities Payable £'000
France	599,628	709,500
Italy	560,000	248,000
Yugoslavia	25,591	32,800
Greece	21,441	25,550
Rumania	18,448	31,250
Portugal	20,134	23,975
	<u>1,245,242</u>	<u>1,159,075</u>

The following table shows the ann. payments due to and from Great Britain — under the war debt settlements and the Young Plan (q.v.):*

Year ending Dec 31	War debt receipts £. (millions)	Reparation receipts £m (millions)	Payment to U.S.A. \$(millions)
1935	18.25	444.8	181.66
1945	18.9	439.1	182.00
1955	18.9	444.2	181.35
1965	20.4	400.6	180.63
1975	20.65	344.6	185.93
1985	20.65	—414.1†	—

* The above figures take no account of the repayment of the instalment suspended during the 'Hoover' year, 1931-32.

† This figure corresponds to the excess under debt receipts of Great Britain over war debt payments in 1985-86.

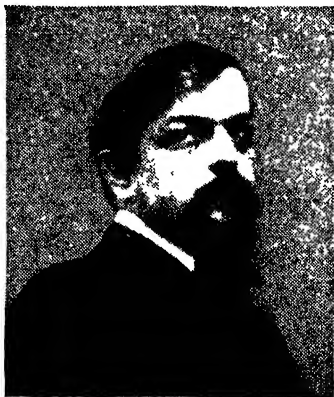
The following statement shows the govts. which owed money in account of war debts to the U.S.A. payable during the first half of 1933 the full amounts of such moneys which were due to be paid, and the amounts actually paid (\$5 is £1 at par).

	Full amount \$	Amount paid \$
Great Britain	75,950,000	10,000,000
France	40,738,567.5	—
Italy	13,545,437.5	1,000,000
Belgium	6,325,000	—
Poland	2,953,562.5	—
Czechoslovakia	1,500,000	180,000
Rumania	1,000,000	25,000
Yugoslavia	275,000	—
Estonia	228,182.5	—
Finland	148,592.5	148,592
Greece	130,000	—
Lithuania	123,535	—
Latvia	119,609	6,000
Hungary	32,025	—

Deburau, Jean Baptiste Gaspard (1796-1846), famous Fr. mimic, b. in Bohemia, son of a Fr. soldier. As a youth led a wretched life with travelling troupes; but, having learned everything from balancing a ladder on his nose to *le saut périlleux*, he hit on the idea of resuscitating a Rom. pierrot worthy of the days of Bathylus. Thus, with beflowered visage, he came to the Funambules theatre, where Charles Nodier recognised his genius. Aided by his power as a farceur, his sang-froid, lively features, and artistic intelligence, he quickly became the rage of Paris. Gautier, indeed, ranked him as an actor with Talma and Rachel—a happy and rare accident. His son Charles (1829-73) was also well known as a pierrot at the Funambules.

Debussy, Claude-Achille (1862-1918), Fr. musical composer, b. at St. Germain-en-Laye, studied at Paris Conservatoire from age of eleven—under Lavignac, Marmontel, and Guiraud. Under the tuition of Massenet, he won the Grand Prix de Rome with his cantata *L'Enfant prodigue* in 1884. His personality dominated music in Europe for a quarter of a century, and it has been said that D. alone is responsible for the fact that Fr. music is once more 'an example and an ornament to Europe' (M. André-Saurez). He revitalised most forms of musical art, whether symphonic, dramatic, pianoforte, or lyrical. For his sheer technical skill combined with elusive originality, and an adroit use of overtones and of unusual chords, he has been compared to Berlioz, and in point of innovation his legacy to music is the completion of the reform in harmony begun by Chabrier, Gabriel Fauré, and others. After 1884 he lived in Italy for some years, where it is said he tried to forget the cramping influence of the old formulas and to strike out new laws more adapted to his intuition. One result was *Printemps*, an orchestral suite sent from Rome to the Institut, which appears to have shocked that body by its harmonic iconoclasm. In one point D. was well ahead of other innovators—he was not an innovator by mere caprice. He appreciated the oneness of all art; and he saw that music must develop along lines parallel to those along which poetry or painting develop. His next productions, *Ariettes oubliées*, *Cinq Poèmes de Baudelaire*, and *Suite bergamasque*, show the break-away from romanticism towards the direct interpretation of feeling. He composed his celebrated *Prelude à L'Après midi d'un faune* under the inspiration of Mallarmé, a work as original as the *Symphonie fantastique* of Berlioz and baffling for the apparent simplicity with which it succeeds in reflecting the feelings, now ardent, now sensuous, now profound, which it is intended to express. His next masterpieces were *Proses lyriques* (1894), *Chansons de Bilitis*, and *Nocturnes* (1898), all impressionist pieces; and in 1902 his one opera *Pelléas et Mélisande*, an opera which frankly discards not only the old reputedly archaic forms, but also the lyrical dramatic form of Wagner. It is regarded by some critics as exhibiting a

perfect balance between poetry and music. The only other work he wrote for the theatre was the incidental music for d'Annunzio's *Martyre de Saint Sébastien* and a ballet *Jour*, composed for Diaghilev. His later work was mainly chamber music and orchestral, including *La Mer*, *Iberia*, and *Rondes de Printemps*. See L. Laloy, *Claude Debussy*; R. Rolland, *Musiciens*



CLAUDE-ACHILLE DEBUSSY

d'aujourd'hui, 1908; L. Vallas, *Claude Debussy: his Life and Works* (Eng. trans. 1933); O. Thompson, 1937; and E. Lockspeiser, *Debussy* (Master Musicians), 1938.

Decabrists, or Decembrists, Russian military conspirators, including many officers who inaugurated a movement to overthrow imperial despotism (Dec. 1825). They sought to establish the legal equality of citizens, open the courts of justice to the public, abolish all monopolies and military colonies, and carry out much-needed reforms in church and army. In spite of the determination and courage of the conspirators, the movement failed. Nicholas I. treated them with great severity. They were refused a trial, five of the ring-leaders were hanged, and the remainder banished to Siberia. See *Cambridge Modern History* (vol. x.), 1907.

Décadents (Lat. *de*, from; *cadere*, to fall), school of young writers and artists, such as Baudelaire, Verlaine, Mallarmé, and Barrès, who were much discussed in France about 1882. The more debased took absinth and drugs and endeavoured by their eccentricities to attract public attention. The Symbolist movement rose from, and absorbed the best of, the D. The Symbolists were aesthetic and literary. They delighted in half-tones, delicate shades of expression, and placed psychical sensation above realism. 'Decadent' is still applied to those modern writers and artists whose artistic ideal is the production of morbid and unhealthy types. See Symons, *The Symbolist Movement in Literature*, 1899.

Decagon (Gk. *δέκα*, ten; *γωνία*, angle), in geometry a figure with ten sides and ten angles, called a regular 1), when all the sides and angles are equal.

Decalogue (Gk., *δεκαλογος*, ten sayings), name under which the Gk. fathers speak of the Ten Commandments, of which two versions are given in the O.T., viz. in Dent. v. 6-21, and Exod. xx. 2-17. According to the account given in Exod. xx., they were given to the Israelites by Jehovah on Mt. Sinai, and were engraved by his finger on two tables of stone. These being broken, Moses was commanded to hew two fresh tables on which Yahweh again engraved the commands. In the W. Church since the time of Augustine it has generally been held that the first four commandments, giving the duty towards God, were inscribed on the first table, and the last six, the duty towards one's neighbour, on the second. Philo and Josephus, however, assume the natural arrangement of five on each table. There are three distinct arrangements of the commandments: (1) The Talmud makes the introductory sentence, 'I am the Lord thy God which have brought thee out of the land of Egypt, out of the house of bondage,' the first commandment, and then combines the next two (Exod. xx. 3-6) into one, thus keeping the number ten; (2) Rom. Catholics and Lutherans also combine these two commandments and keep the number by splitting the last commandment into two; (3) the Gk. Church, the Anglican Church, and all the other reformed bodies keep the arrangement assumed in this article. The D. deals with moral, not with ritual, questions, and its date is now generally fixed by critics at the eighth century B.C. or somewhat later.

Decameron, collection of tales by Boccaccio written between 1318 and 1388, conceived as related in ten days at a country villa during the plague at Florence. They are of a licentious character, but told with much humour and literary skill. They have been drawn upon by generations of writers, including Chaucer, Shakespeare, and Tennyson. See **Boccaccio**.

Decamps, Alexandre Gabriel (1803-1860), celebrated Fr. painter, b. in Paris, and the pupil of Abel de Pujol, David, and Ingres. He first exhibited in the Salon of 1827, the originality of his style at once attracting notice. He founded the Fr. school of Orientalism, and took high position as a colourist, landscape, and genre painter. 'Café in Asia,' 'Street of a Roman Village,' 'Children Playing near a Fountain,' are among his finest pictures. Chantilly and the Wallace collection in London contain some of his best work. See **lives by Moreau** (1869) and **Clement** (1886).

De Candolle, see **CANDOLLE**, **AUGUSTUS PYRAME**.

Decapitation, or beheading, an anct. punishment employed by the Gks. and Romans. First incurred in England by Earl Waltheof, beheaded by William the Conqueror (1075). Not only felons but also delinquents of high rank were

formerly decapitated, the rebel lords of 1745 being the last Englishmen to incur that penalty. Those capitally convicted in France are still beheaded with the guillotine. See **CAPITAL PUNISHMENT**.

Decapoda, order of malacostracate crustaceans which includes crabs, lobsters, crayfishes, and shrimps, and is therefore the order best known to the vulgar. Usually all the thoracic segments are fused to the head in the species, and there are always five pairs of trunk legs; the sexes are distinct. The decapoda are widely distributed, favouring chiefly the warmer seas. The term is also used for the sub-order of Cephalopoda, which have eight arms and two tentacles.

Decapolis (Lat. from Gk. *δεκάπολις*, ten cities), name used in anct. writings to denote a league of ten cities situated in or near Palestine and mainly E. of the Jordan. In the second century the number was apparently increased. The confederated cities included Scythopolis, Philadelphia, Damascus, Della, Diun, Hippos, Gadara, Gerasa, Raphana in Basban, and Kanatha. Details are obscure, but these tens. were probably founded or settled in by some of Alexander the Great's veterans, when in his conquest of the E. (331 B.C.) he opened up the old Semitic world to the influences of Gk. culture.

Decatur, Stephen (1779-1820), Amer. naval commander of Fr. extraction, b. in Maryland. He achieved distinction by his daring feat at Tripoli (1804) when he made a dash into the harbour and burned the Brit. frigate *Philadelphia*, which the Tripolitans had captured. He also captured the Brit. frigate *Macedonian*, when commodore of a squadron off the Atlantic coast in 1812. Soon after leaving New York (1811) he was engaged in a hard fight with the Brit. fleet and forced to surrender. The same year he sailed in command of a squadron against Algiers, but the war was soon concluded by a treaty dictating terms to Algiers, Tunis, and Tripoli. He met his death in a duel near Washington with Commodore James Isorron. See the standard life by A. S. Mackenzie, 1846, and C. T. Brady, *Stephen Decatur*, 1900.

Decatur 1. City of Macon co., Illinois, U.S.A., situated 10 m. E. of Springfield. Its manufs. consist of corn products, agric. machines, brass goods and tools, cars and trucks, and soda fountains. There are large flour-mills and a univ. The Cincinnati, Hamilton and Dayton, with the Illinois Central railways, pass through the city. Pop. 59,300. 2. City in N. Alabama, U.S.A., formed in 1927 by the union of New D. and D. It has important manufs. Pop. 16,600. 3. City of Georgia, U.S.A., a health resort close to Atlanta. Pop. 16,500.

Decazeville, tn. of France in the dept. of Aveyron, 34 m. N.W. of Rodez by rail. Duc Decazes, minister of Louis XVIII., estab. iron-works, which are still supplied by the iron-mines in the vicinity. It is also the centre of the coalfield of the Aveyron. Pop. 12,100.

Deccan, or **Dekkan**, comprehensively includes those tens. of India that are

situated S. of the R. Nerbudda, though more particularly the dist. stretching between that riv. and the Kistna. The states of Mysore and Hyderabad and the provs. between Madras and Bombay form a part of this large tract. With the Ghats rising to 3000 ft. on the W. it forms a high plateau.

Deceased Wife's Sister. The Marriage Act, 1835, nullified as from that date all marriages between persons within the prohibited degrees of affinity (relations of marriage) while legalising those already celebrated. But by the Deceased Wife's Sister Marriage Act, 1908, marriage with a D. W. S. is legal. The Act of 1907, while validating the union as a civil contract, expressly permits any minister of a church or chapel of the Church of England to refuse to celebrate the marriage without incurring any penalty, civil or eccles.; but the clergyman so refusing may permit another to officiate in his place. The Act does not legalise marriages annulled before Aug. 28, 1907, and saves all existing rights and interests. Consequently the Act in no way affected the devolution of property on intestacy as to the issue of marriages celebrated before the Act.

Decebalus, see DACIA.

Decelea, demus (or par.) of Attica, seized and fortified by the Spartans in the Peloponnesian war.

December (Lat. *decem*, ten), name given to the last, or twelfth, month of the year. It is so called because before the time of Julius Caesar the first month of the old Rom. calendar was March, so that what is now the twelfth month was only the tenth. The A.-S. called it *Mid-winter-month* or *Yule-month*.

Decembrists, see DECEMBRISTS.

Decemviri (Lat. the ten men), ten magistrates of supreme authority at Rome. After the fall of the Tarquins dissatisfaction was still rife among the plebeians, because, there being no written code of laws to protect them, they depended for justice on the pleasure and will of the patricians. The tribunes appealed on behalf of the people to the senate, and in 451 B.C. the new magistrates were appointed (*D. legibus scribendis*, the D. for writing the laws). The first D. were Appius Claudius, T. Genucius, P. Sextus, Sp. Veterius, C. Julius, A. Manlius, Ser. Sulpitius, Pluricius, T. Romulus, Sp. Posthumus. Their authority was supreme, and with their appointment all other magistracies ceased. According to the agreement the plebeians were eligible to the new order, but no plebeian was elected in 451 B.C. At the end of their year of office the D. pub. a code of laws based on the laws of Solon and other great law givers. These laws were exposed to public view and solemnly ratified by the priests as *augurs*. The laws were ten in number and were inscribed on tables in brass. Two more were added, and they became known as the *leges duodecim tabularum* (laws of the twelve tables) (see TWELVE TABLES). The order continued to be elected each year for three years, but in the third year their behaviour became

so despotic that the people were exasperated. The attempt of Ap. Claudius to dishonour Virginia roused the people to abolish the order, and the consuls were restored. The laws of the twelve tables still remained the nucleus of Rom. law. There were other orders of D. at Rome. The *D. sacris faciendis* (D. for the performance of sacred rites) were appointed by Tarquin to guard the Sibylline books; they were originally two, but afterwards ten in number (five being patricians and five plebeians), and Sulla increased their number to fifteen (called *quindecimviri*) in 81 B.C. The *D. litibus judicandis* (D. for judging cases) had jurisdiction in civil cases during the republic and the empire.

Deciduous Trees are those which shed their leaves annually, which takes place in temperate climates in autumn. The fall of the leaf is caused by a layer of cork, the abscission layer, being formed across the base near the insertion of the leaf. This layer becomes disorganised, as water cannot pass through it, and so causes a break, which is hastened by wind or frost.

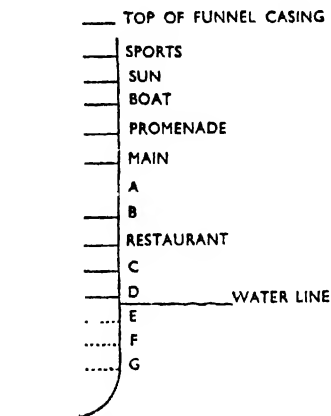
Decimal Fractions. On account of the difficulty found in manipulating many small fractions such as $\frac{1}{2}$, $\frac{3}{4}$, $\frac{5}{8}$, particularly in addition and subtraction, it was found necessary to devise some simpler system of notation. This was done by an extension of the ordinary system of numeration. If we take the number 125, the figure 5 = five units; the figure 2 = two tens; the figure 1 = one hundred; i.e. going from right to left a figure becomes ten times as great at each step. A dot (called the decimal point) being placed after the units figure, this process was then carried further, and figures were made to continue decreasing by ten at each step from left to right. Thus, in 125.316, the 3 = three-tenths; the 1 = four-hundredths; the 6 = six-thousandths; the whole number = 125 $\frac{316}{1000}$. To turn any vulgar fraction into a simple decimal fraction it must be possible to bring its denominator to a power of ten. Hence, any vulgar fractions whose denominator contains any prime factor other than 5 or 2, will always contain some element which is repeated to infinity, the process never ending. Thus $\frac{1}{3} = .3333$, etc. This is abbreviated as $\frac{1}{3} = .\dot{3}$, a dot being placed over the figure, and it is spoken of as 'point 3 recurring.' Sometimes a whole series repeats, e.g. $\frac{1}{7} = .142857$ and here a dot is placed over the first and last figures. Similarly, $\frac{1}{16} = .0625$.

Decimal System, name applied to any system of weights, measures, etc., which has the standard unit divided into tenths, hundredths, etc., for parts below it, and multiplied by ten or powers of ten for parts above it in value. It has been adopted for weights and measures and money in most of the European countries, but has been rejected in this country and in America for various reasons, one of the chief being that our system possesses better facilities for dividing into halves and quarters with fairness to purchasers

than does the D. S. It has been found inapplicable to time. See METRE, NOTATION, NUMERALS, GRAMME.

Decimation, Rom. military punishment, inflicting execution on every tenth man chosen by lot, thus obviating too great weakening of the army when a large body of soldiers had been found guilty of a crime meriting death.

— TOP OF FUNNEL



THE DECKS OF THE 'QUEEN ELIZABETH'

Décin, see TETSCHEN.

Decius, Caius Messius Quintus Trajanus, Rom. emperor, b. at Budalia in Lower Pannonia. In 249 he was sent by the Emperor Philippus to put down a rising of the Moesian army, but the soldiers made him their emperor against his will and persuaded him to advance against Italy. They met Philippus near Verona, who after a fierce engagement was killed. Throughout his short reign he was in constant conflict with the Goths and barbarously persecuted the Christians. He was killed in battle against the Goths through the treachery of Gallus, who succeeded him as emperor.

Decius Mus, Publius (340 B.C.): 1. Consul at Rome and commander of the Rom. army during the Lat. war. Tradition says a vision told him that the army of one side and the general of the other must perish. The following day, at Vesuvius, D. sacrificed his life to ensure a Rom. victory. 2. D., son of the above, and four times consul. In order that the Rom. arms might triumph he d. with similar heroism at Sentinum, 295 B.C.

Deeize, tn. in the dept. of Nièvre, France, is situated on a rocky is. in the Loire, at the summit of which is an old castle. It has glass works, potteries, and iron works. Pop. 4000.

Deck, term used in ship structure to indicate the floor or platform extending from side to side of the vessel. It is usually made by covering the D. beams with steel or planking. All Ds., particularly the upper or weather D., have a slight camber or slope towards the ship's side to afford strength and facilitate the dispersal of water. Three, four, and even as many as thirteen (the *Queen Elizabeth*) Ds. are usual in modern ships, the protective Ds., fitted exclusively to men-of-war, being always heavily armoured.

Decker, Thomas, see DEKKER.

Declaration, in the language of pleadings before the abolition of forms of action by the Judicature Act in 1873, meant the statement of his case by the plaintiff in an action at law. It formed the statement of claim, the first of the pleadings in an action in which the plaintiff states the nature of his case at greater length than in the writ of summons. Any natural variation in the D. from the tenor of the writ was ground for objection, and similarly with respect to a statement of claim. The term D. as now used means that part of the order or judgment of an equity judge or judge of the chancery div. which *declares* the rights of the parties to a suit by way of incidental relief, or even where no relief can be given in the action at all other than such as may be implied by the declaratory judgment, as, for example, that a mortgagor's estate is forfeited, that a surety is discharged, that a solicitor shall have a lien on particular property, or that a party is legitimate.

Declaration of Human Rights, Universal, see HUMAN RIGHTS.

Declaration of Independence (America), one of the most far-reaching documents in the hist. of mankind was adopted by the Continental Congress of the thirteen original states of the U.S.A. on July 4, 1776. As it marked the birth of a nation at the historic Independence Hall in Philadelphia, it is still celebrated as the great Amer. national holiday. The adoption of the D. which marked the definite breaking away of the colonies from the rule of Great Britain, was only secured after much delay and doubt. Hostilities had already broken out between the colonists and the troops of King George III. Nevertheless, the Congress sent a petition to the king asking that their wrongs be redressed. He not only declined to receive the petition, but refused to see the messenger who bore it. Furthermore, in a proclamation, he declared the colonists in a state of rebellion and no longer under his protection. Being unable to secure in England all the troops that he needed, King George hired Ger. troops from Hesse-Cassel, hated by the colonists under the name of Hessians. These acts infuriated the Congress and the people, and the convulsion came slowly to them that they had no recourse but to

declare their independence and fight for it. A committee was chosen to prepare a declaration and Thomas Jefferson, afterwards third President of the U.S.A., became chairman, and to him was assigned the task of writing the far-reaching document. It was adopted on July 4 and signed by most of the delegates in the following month. Part of the language of the preamble has passed into the language of the world:

'We hold these truths to be self-evident, that all men are created equal, that they are endowed by their creator with certain unalienable rights; that among these are life, liberty, and pursuit of happiness. That to secure these rights, governments are instituted among men, deriving their just powers from consent of the governed. That whenever any form of government becomes destructive of these ends, it is the right of the people to alter or abolish it, and to institute new government, laying its foundations on such principles and organising its powers in such form as to them shall seem most likely to effect their safety and happiness.' It stated that the hist. of King George was one of repeated injuries and usurpations. It recited that he had refused assent to laws necessary for the public good; had dissolved representative houses repeatedly because they opposed his invasions of the rights of the people; had made judges dependent on his will alone; had cut off the trade of the colonies from the rest of the world; had in many cases deprived his subjects of trial by jury; had imposed taxes without their consent; had quartered troops on the people; and taken away their charters. It concluded with a declaration that the colonies were and as of right ought to be free and independent states, severing all allegiance to the Brit. Crown, and that as free and independent states they had all power to levy war, conclude peace, contract alliances, and establish commerce.

This document, backed up by a successful war for independence, changed the course of hist. It for ever challenged the idea of the divine right of kings. It was the inspiration of the Fr. Revolution, with its battle-cry of 'Liberté, Égalité, Fraternité.' Echoes of it were heard often during the First World War and the peace conferences which followed it, when statesmen repeated the doctrine that peoples have the right of self-determination. Monarchs, like the ex-Kaiser, even down to the days of the First World War, sought to enforce the doctrine of their divine right to rule, but the impulsion of self-gov. would not be denied. To-day Great Britain, with a constitutional king, is the shining example to the world of how a nation can have a royal house and yet be one of the freest and most democratic countries in hist. But long before this condition had been reached in Europe, the D. of I. had affected the whole subsequent hist. of the New World. The Sp. colonies of Mexico and of Central and S. America broke away and set up republics whose constitutions were largely modelled on that of the

U.S.A. Brazil broke away from monarchist rule and became a republic. Canada, by generous and far-seeing treatment by the Brit. Crown, remained within the empire, but is just as free as the U.S.A.—master in its own house, as indeed are all the other dominions of the Brit. Commonwealth of Nations. See H. Friedenwald, *The Declaration of Independence, an Interpretation and an Analysis*, 1904; F. Whitton, *American War of Independence*, 1931; and C. Becker, *Declaration of Independence*, 1933.

Declaration of London, document which has for its object the international regulation of the mutual rights and obligations of belligerents and neutrals in time of war between any two or more of the signatories thereto. It was drawn up by the International Naval Conference held in London in 1909, at which plenipotentiaries of the great powers met, primarily for the purpose of coming to some agreement as to the recognised rules of international law in regard to the estab. of an international prize court. It contains seventy-one articles, the most important being those relating to contraband (*q.v.*). In regard to blockade, the D. of L. repeats the Declaration of Paris (*q.v.*), and establishes that a blockade must not extend beyond the ports and coasts belonging to, or occupied by, the enemy, and also that it must be applied impartially to the ships of all nations. When the First World War broke out the D. of L. had not been ratified by Great Britain, but immediately afterwards it was adopted by Orders in Council, with certain modifications, chiefly referring to conditional contraband and the doctrine of continuous voyage (*see* BLOCKADE). As the war progressed the D. was found to be extremely unsatisfactory and, after further modifications, was eventually dropped altogether by the Maritime Rights Order in Council of July 7, 1916. At the outbreak of the war the other belligerents followed much the same course as Great Britain, but gradually the D. was modified out of recognition, and before the end of the war it had ceased to be an instrument possessing binding force. *See also* CONTRABAND.

Declaration of Paris. The object of this D., which was adopted by the leading European powers at the Congress of Paris in 1856, was to assimilate the principles of the maritime law of the different signatories on an outbreak of war. The prin. articles declare: (1) Privateering is, and remains, abolished; (2) a neutral flag covers enemy's goods, except contraband of war; (3) neutral goods, except contraband of war, are not liable to confiscation under a hostile flag; (4) blockades to be binding must be effective. The result of the fact that since 1856 every civilised state, except the U.S.A., Spain, Mexico, and Venezuela, has signed the declaration is that privateers can only be employed by the signatories during a war with one of the four outstanding states. On the outbreak of the Hispano-Amer. war of 1898, the Gov. of the U.S.A. bound itself to observe the

articles of the declaration during the war, while Spain agreed to become bound by articles (2) and (3), with a reiteration that the D. was not binding upon her. The U.S.A. also intimated at the outbreak of the Civil war that they would observe the D.

Declaration of Rights, see BILL OF RIGHTS.

Declarations of Deceased Persons. It is axiomatic in the Eng. law of evidence that hearsay is inadmissible as proof. The best evidence that a particular statement was made is the testimony of him who made the statement. But there are certain cases where it is impracticable to adhere to the rule, and among those excepted cases are the oral or written D. of D. P. Such statements which are relevant to prove any fact in issue or any fact regarded as relevant to any fact in issue include the following: (1) A declaration or statement made by a person who can be shown to have been in actual danger of death, and to have given up all hope of recovery at the time of making the declaration. Such a declaration is only relevant in the trial for the murder or manslaughter of the declarant; and to be admissible the declaration must have had reference either to the cause of death or to the attendant circumstances thereof. (2) A declaration against the pecuniary or proprietary interest of the declarant. It must be shown that the deceased had no interest in misrepresenting the matter in question, that he made the statement at or very shortly after the time when the act occurred which is sought to be proved, and that he had peculiar means of knowing the matter stated. (3) Statements made by a person in the ordinary course of business or in the discharge of professional duty. (4) D. as to pedigree, relating to the pedigree of some person of whom the declarant was a legitimate blood relation. If made after the commencement of the action they would be inadmissible in evidence. (5) In cases where a will has been lost, or there is a suggestion that a particular will was a forgery, or obtained by wrongful means, statements made by the testator concerning the contents of his will or the manner in which he intended to dispose of his property. (6) Statements relating to the existence of a public or general right, e.g. a right of way. For the purpose of perpetuating the testimony of a person whose death is apprehended, the criminal law allows his deposition to be taken down in writing and afterwards used in evidence on proof that the deponent either is dead or unlikely ever to be able to travel or give evidence.

Declaration, Statutory, declaration in the form: 'I (*name*) do solemnly and sincerely declare that (*subject matter of declaration*), and I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Statutory Declaration Act, 1835,' was by the Act substituted for an oath or affidavit for most official or departmental matters, including the verification of documents. The oath of a

witness in a court of law is not affected by the Act, which specially excepts it.

Declarator. In Scots law, Ds. or declaratory actions form one of the three classical divs. of Scottish actions. A declaratory action is one in which some right, personal or proprietary, which is actually infringed or threatened is sought to be declared in favour of the pursuer (Eng. plaintiff), but where nothing is sought to be paid or performed by the defender (Eng. defendant). Illustrations are Ds. of marriage, of bastardy, and of irritancy (loss of feu rights by non-payment of feu-duty for two full years). Ds. may be brought either in the court of session or in the sheriff courts, except that Ds. of marriage or nullity and Ds. relating to personal status may not be brought in the latter court.

Declension (Lat. *declentio*, a turning or leaning away, i.e. the form assumed by words as they fall away from the nominative). In grammar the term signifies the inflections or changes a word receives according to its meaning or relation to other words in a sentence. Eng. has no proper Ds., only traces of a dative and genitive, neither has it genders, except in pronouns of third person. Sanskrit has eight cases, Lat. six, and Gk. five. Lat. cases are nominative, genitive, dative, ablative, accusative, vocative. Gk. has no ablative; Sanskrit adds locative. Instrumental case-endings are gradually being dropped, and prepositions used instead, as in Fr. and It. Agglutinating languages are usually prolific in cases: the Finnish has fifteen, the Magyar has twenty.

Declination. The angle between the magnetic meridian (vertical plane through axis of a compass needle placed at any point) and the geographic meridian (vertical plane through that point and the poles of the earth) at any point is called the D. of that point. The fact that a compass needle does not point true N. was first observed by Columbus in 1492. In Great Britain the compass needle points W. of true N. At London the D. is 16° 16' W., at Sydney 9° 36' E., and nil at St. Petersburg (1901), this being one of the few places where the compass needle points due N. This D. is not constant, but changes from year to year. This secular change was first noticed by Burroughs in 1580; for example, in that year the D. at London was 11° E., in 1657 it was nil, while in 1816 it had attained a maximum westerly value of 24° 30'. Since that date it has been gradually diminishing again; 320 years are required, it is computed, to give a complete cycle of secular changes in the D. See ISOCLINIC; AGONIC LINES; MAGNETISM; DIP.

Declination, in astronomy, the complementary term to right ascension (see ASCENSION, RIGHT). The face of the heavens being regarded as a globe—the celestial globe—for the purpose of finding objects—stars, planets, etc.—on it, this globe is crossed by imaginary lines. The *declinations* correspond to similar lines on the terrestrial globe, right ascension being the equivalent of long. and D. of lat. The D. therefore of a star is its

distance in degrees N. or S. of the celestial equator, or ecliptic.

Decoction (Lat. *de*, down, and *coquere*, to cook, boil), term used in pharmacy for the process of forming a solution by boiling an organic drug in water. There are as a rule about five grains of drug to 100 c.c. of D. The drug may sometimes be boiled in oil.

Decolic Acid, see CAPRIC ACID.

Decorated Style, see under ARCHITECTURE, *Gothic*.

Decoration Day, or **Memorial Day**, ann. holiday (May 30) appointed by all the N. and some of the S. states of America for the purpose of decorating the graves of, and commemorating, the soldiers who lost their lives in the civil war.

Decorations, see MEDALS, ORDERS OF KNIGHTHOOD.

Decorations for War Services. *First World War.*—The total number of D. or honours conferred on members of Brit. and Indian forces for services in the field and for services in connection with the war between Aug. 1914 and the termination of hostilities was upwards of 476,000. This number was made up for the most part of D. for services in the field, those in 'connection with the war' being the official description in the case of awards in respect of services during air raids, coastal bombardments, etc., or serving outside a recognised theatre of military operations. For these latter services some 13,000 D. were given. Included in the total were also 5407 awards by way of promotion. The following were the numbers of the various awards made: V.C., 579; V.O. (bars), 2; G.C.B., 14; G.C.M.G., 22; G.B.E. (military div.), 5; K.C.B., 158; K.C.M.G., 197; K.B.E. and D.B.E., 74; C.B., 1052; C.M.G., 2659; C.B.E. (military div.), 1095; D.S.O., 8991; D.S.O. (bars), 784 (one of these was given for bringing down a Zeppelin airship in England); O.B.E. (military div.), 2664; B.E.O. (civil div.), 902; Red Cross and bars, 5986 (of which about 1000 were for field services); M.C., 37,041; M.C. (bars), 3125; D.C.M., 24,571; D.C.M. (bars), 478; M.M., 115,429; M.M. (bars), 5965; M.S.M. and bars, 245,508; Medals, B.E.O., 424. The total number of officers and men who passed through the Brit. Army during the war was approximately 6,000,000. In the S. African war, when the total number of troops in the field was 448,435, the number of D. or honours was 3714, made up as follows: V.C., 79; G.C.B., 3; K.C.B., 25; C.B., 292; G.C.M.G., 4; K.C.M.G., 8; C.M.G., 110; D.S.O., 1143; and D.C.M. 2050. In the First World War the promotions for services in the field included four promotions to field marshal's rank, viz. Lord Haig, Lord Allenby, Lord Plumer, and Sir Wm. Robertson, and for services outside a theatre of war, one such promotion, viz. that of Sir Henry Wilson.

Second World War.—The following is a detailed list of major wartime awards to officers and men of the R.N., R.N.R., R.N.V.R., Royal Marines, and Dominion navies: V.C., 24 (officers, 18; men, 6); G.C., 31 (officers, 26; men, 5); D.S.O., 686; D.S.O. (bars), first bar, 110; second bar,

24; third bar, 3; D.S.C., 4529; D.S.C. (bars), first bar, 425; second bar, 44; third bar, 1; Albert Medal, 35 (officers, 16—1 in gold; men, 19—2 in gold); C.G.M., 70; D.S.M., 6998; D.S.M. (bars), first bar, 152; second bar, 4; third bar, 1; G.M., 136 (officers, 85; men, 51); G.M. (bars), first bar, 16 (officers, 14; men, 2); B.E.M., 2688; B.E.M. (bars), 3; G.C.B., 10; K.C.B., 57; C.B., 150; G.B.E., 6; K.B.E., 59; D.B.E., 2; C.B.E., 362; O.B.E., 970; M.B.E., 1128. Totals: officers, 5981; men 9999. The following honours and awards were made to personnel of the merchant navy and fishing fleet: G.C., 5; Empire Gallantry Medal (now replaced by G.C.), 1; knighthood, 10; C.B.E., 50; O.B.E., 1077; M.B.E., 1291; D.S.O., 18; D.S.C., 213; Albert Medal, 11; G.M., 49; D.S.M., 421; Sea Gallantry Medal, 24; 506; M.M., 16,900; D.C.M., 1850; D.C.M. (bars), 10; B.E.M., 1717; Mention in Dispatches, 994; Commendations, 2568. Total awards, etc., 8149. Promotion to admiral of the fleet: Sir Charles Forbes, Viscount Cunningham of Hyndhope, Lord Tovey, Sir James Somerville, Sir John H. D. Cunningham, and Lord Fraser of N. Cape. Up to the end of 1945 the army awards (excluding campaign stars, defence and general war medals) were 51,800. The number of V.C.'s was 181 (including 1 bar); D.S.O., 4462; D.S.O. (bars), 557; M.C., 10,386; M.C. (bars). The highest number of officers and men serving in the army at any time during the recent war was 2,931,000 (plus 223,000 women). This means that a total of over 4,000,000 passed through the army. The home guard at one period numbered 1,700,000. Many of these were during some of their time in the army. The total who served in the army and home guard at one time or another was over 5,000,000. The army's entitlement to campaign stars, defence medal, and war medal is over 10,000,000. Promotion to field marshal: Lord Ironside, Earl Wavell, Viscount Alanbrooke, Viscount Alexander of Tunis, Viscount Montgomery, Lord Wilson, and Sir Claude Auchinleck. The following awards were made to air force personnel, including dominion and colonial, up to the end of 1945: V.C., 27 (three subsequently to 1945, making a total of 30); G.C., 19; G.M., 151; B.E.M., 1192; D.S.O., 1078; D.S.O. (bars), 92; C.G.M., 113; D.F.C., 18,889; D.F.C. (bars), 1560; D.F.M., 6363; D.F.M. (bars), 57; M.C., 61; M.M., 118; A.F.C., 1709; A.F.C. (bars), 28; A.F.M., 244. The following honours were awarded: G.C.B., 9; K.C.B., 29; C.B., 195; G.B.E., 4; K.B.E., 41; D.B.E., 3; C.B.E., 452; O.B.E., 1155; M.B.E., 1695; R.R.C., 24; R.R.C. (bars), 2; associate R.R.C., 111; mentions, 37,283; commendations, 908. Promotion to marshal of the R.A.F.: Lord Newall, Viscount Portal of Hungerford, Lord Tedder, Lord Douglas of Kirtleside, and Sir Arthur T. Harris.

Decort, **Frans** (1834-78), Flemish lyrical poet. He pub. the well-known Flemish almanac, *Jan en Aleman*, and trans. some of Burns's poems into his own tongue.

Decoy. This word has had a complicated hist. It appears in Eng. first in the

seventeenth century in these senses, as coy and coydock, from the Dutch *koot*. This word is ultimately connected with Lat. *cavea*, a cave or hollow. The *de* at the beginning of the word is considered by some authorities as a corruption of duck-coy, by others as the Dutch article *de*, and by others as a corruption of the Dutch *rende-kooi—eende* being the Dutch for duck. The word was also used in a particular sense to denote a swindler, and also as the name of a game of cards, as early as 1550. A D. is therefore an enclosure for catching ducks or other wild fowl, a contrivance for catching and enticing wild fowl within range of a gun, hence any trap or enticement into a place of danger. Ds. are, as a rule, made on the following plan: Long tunnels lead from the sea, channel, or estuary into a pond or pool; these are covered with an arched net which gradually narrows in width. The ducks are enticed into this by a tame-trained bird also known as a D., or D. duck. Trained dogs are also used. Once the ducks are along the narrow end of the channels or pipes they are easily caught. In America, and sometimes in England, artificial Ds. are used. These are generally made of wood. The D. is placed on the water as if it were feeding. This attracts the other wild fowl within range of the concealed sportsmen. Many books have been written on the art of decoying ducks and wild fowl, the best being Sir W. Payne Sallmeyer's entitled *The Book of Duck Decoys*.

Decree, term formerly given to any adjudication by a court of equity in contradistinction to a judgment in a common law (*q.v.*) court. The plaintiff formulated a written statement of his case in a long technical document called a bill, and the defendant put in a written answer on oath. The D. which was pronounced upon the bill and answer was framed so as to meet all the exigencies of the case. Since the Judicature Act, 1875 (*see also* EQUITY), an adjudication by a judge of the chancery div. upon an action begun by originating summons is generally called a judgment, and an order made in a motion, petition, or *ex parte* application is referred to simply as an order. The term D. has now become more or less restricted to adjudications in administration, partnership, and foreclosure actions in the chancery courts. The term D. has also a well-known meaning in connection with interim and final orders in the divorce court, a D. nisi being the judicial pronouncement of a divorce or judicial separation to take final effect six months later as a D. absolute, if the king's proctor does not intervene. A similar distinction applies to a mortgagee's foreclosure action, the D. nisi being made absolute where the mortgagor does not redeem within the time allowed him by the court. The Ds. of the pope, which are called decretals, may be defined as decisions of the popes in matters of eccles. law. The Ds. of the pope retained their authority as law till the fourteenth century, when the power of the holy see began to decline. From the fifth century

the decretals of the popes have been collected, and there are sev. collections of them. *See also* CANON LAW.

Decrement, *see* INCREMENT.

Decrescent, or **Decrement**, term applied in heraldry to the waning moon, i.e. its horns turned to the sinister.

Decretals, collection of laws added to the canon law of the Church of Rome, consisting of judicial replies by the popes to cases submitted to them for adjudication. The false D. of the ninth century were a blend of authentic material and forged additions. The author, the 'pseudo-Isidore,' lived in Spain as the archbishop of Seville (Isidore), and took the surname Mercator. The false D. had a considerable influence on eccles. hist.

Decretals, False, *see* ISIDORIAN DECRETALS.

Decroly, Ovide (1871-1919), Belgian doctor and teacher. In 1910 he opened a school for backward and abnormal children in Brussels, and used the experience he gained in a school for normal children in 1907. He agreed with the assertion of Dewey, the Amer. educationist, that 'education is not a preparation for life; it is life,' and modelled his teaching on a system of 'centres of interest' (*methode globale*). The system avoids the subdivision of a scheme, with scattered headings, and substitutes groups of ideas as a foundation for lessons over a given period. These groups, previously linked, represent an uninterrupted sequence of themes, which awaken the interest and invite the co-operation of the child. D.'s experiences and conclusions are similar to those of Dr. Maria Montessori (*q.v.*). *See* Amélie Hamade (trans. Jean L. Hunt), *The Decroly Class*, 1925.

Dedeagach, Bulgarian port on Aegean Sea, just W. of mouth of R. Maritsa. During the First World War it sheltered Ger. submarines, and in consequence was bombarded by Brit. and Fr. fleets. Allied forces landed at D. on Oct. 28, 1918, which convinced the Turks, then negotiating an armistice, that Constantinople was threatened. D. was ceded to the Allies by the treaty of Neuilly. Pop. about 3000.

Dedham: 1. Tn. of Essex, England, on the Stour, in the midst of the Constable country, and notable for the vale of 11, subject of that painter's art. Once the centre of the Flemish cloth trade. Pop. 1500. 2. Co. seat of Norfolk co., Massachusetts, U.S.A., situated on the Charles R., 10 m. S.W. of Boston. Fisher Ames was b. here. The prin. manufs. are woollen goods, carpets, and pottery. Pop. 15,500.

Dedication, *see* CONSECRATION.

De Donis Conditionalibus (concerning conditional grants) Statute. This statute, passed in 1285, was intended to prevent the heirs to entailed estates from selling or otherwise disposing of their landed estates as soon as heritable issue was b. to them. This they were enabled to do in spite of the intention of the grantor to tie the estate up in a strict line of descent, by reason of the judicial construction of a grant by A to 'B and the heirs of his body' as a grant of the fee simple (i.e. entire

disposable estate) conditionally upon the birth of issue. The result of this interpretation was that the tenant-entail could not only bar his issue and the grantor's right to the reversion on failure of issue, but could evade his feudal services. The D. D. enacted that the will of the grantor should be observed, but failed in its purpose as soon as recourse was had to the practice of barring the entail by fines and recoveries (*see* COLUSIVE ACTIONS).

Deduction (in logic), *see* under LOGIC.

Dee, John (1527-1608), mathematician and astrologer, b. in London, educated at Cambridge and Louvain. Edward VI. appointed him to a living and gave him a pension; consequently in Mary's reign he was persecuted and narrowly escaped with his life. Things changed, and under Elizabeth he obtained office as intelligencer. For nine years he was warden of Manchester College. During the queen's illness he was summoned for joint consultation with the Ger. physicians on her recovery. He was commanded to draw up a geographical chart of crown lands discovered by Englishmen. This is now in the Brit. Museum.

Dee: 1. Riv., 70 m. long, in N. Wales and Cheshire, rises in Merioneth, and flows into the Irish Sea by way of a wide estuary. The dangerous rapidity with which the tide rises in this neighbourhood is told by Kingsley in his *Sands of Dee*. From Chester to the estuary there is a tidal canal 9 m. long. 2. Riv. in Aberdeen, rises in the Cairngorm Mts., near Ben Macdhuil, and flows through Braemar, Ballater, Aboyne, and Kincardine, entering the sea at Aberdeen. Near Braemar it forms the beautiful cascades, the Linn of D. Balmoral Castle is on its banks. The salmon fisheries are very valuable.

Deed (Lat. *factum*; Norman-Fr. *fact*), instrument in writing or print, upon paper or parchment, duly sealed and delivered, which operates either to pass an interest in property or to confirm a pre-existing contract, by which such an interest passes, or to bind a person hereafter to do, or abstain from doing, something. Ds. are of two kinds, indented and poll. The term indenture implies that the D. is in two parts or similar copies, and that the two parts were cut in a serrated or irregular line so that when placed together subsequently their physical correspondence would evidence the authenticity of each copy. A D. poll is cut even at the edges, and usually contains but one part, being the D. of one person or party only. The modern mode of executing a D. is by signing, sealing, and delivery. The manner of delivering a D. is for the executing party to say 'I deliver this as my act and deed.' Sealing and delivery are essential to the validity of a D., but signing only if expressly made so. A D. which is delivered to a third person, not a party to it, to be given up to the other parties upon the fulfilment of a condition, is termed an *escrow*. The requisites to a valid D. in the U.S.A. are practically the same as in the case of any other contract, but the appointment of an

attorney to execute a D. for another must as a rule be executed with the same formalities requisite to the D. itself. Seals, or whatever equivalent may be used therefor, are required in Alaska, Connecticut, Florida, Illinois, Maine, Massachusetts, Missouri, New Hampshire, New Jersey, New York, Pennsylvania, Virginia, and other states. In nearly all the states Ds. by corporations must be under seal.

Deemster, title of the two chief judges in the Isle of Man, whose duty it is to pronounce doom or sentence. In Scotland it was formerly the title of an inferior official attached to the high court of justiciary, who was also executioner, and who had to recite the recorded judgment.

Deep-sea Deposits, *see* DEPOSITION; DENUDATION.

Deep-sea Exploration, *see* ABYSSAL FAUNA; CHALLENGER EXPEDITION; DEPOSITION; DISCOVERY COMMITTEE.

Deep Sea Fisheries, *see* FISHERIES.

Deer, or Cervidae, form a large family in the group Pecora of the ungulates, in which are also classed the giraffes, oxen, antelopes, sheep, and goats. The characteristic which distinguishes the D. from all other ruminants is the presence of antlers in the males; in the reindeer only they are common to both sexes, and in the genera *Moschus* and *Hydropotes* they are lacking. These antlers are deciduous, falling every year in the rutting season, and consist of bony processes of the frontal bone, covered while growing with a sensitive, vascular, velvety skin. The D. are known fossilised from the Miocene, and there are about sixty living species which inhabit Europe, Asia, and America. *Moschus*, the musk-D., is an aberrant Asiatic genus, remarkable for the presence of a gall bladder as well as the absence of antlers; *Cervus* contains twenty-two well-known species, such as the wapiti, red D., fallow D., and the extinct Irish elk. The roe D., or roebuck, is the smallest of the three wild D. of Great Britain to be found in the woods almost all over Scotland, New Forest, and the Lake Dist. That is to say, the roe have managed to hold on to existence over vast areas of country in which their larger cousins, the red D. and the fallow D., were long since wiped out. *Rangifer*, the reindeer, and *Alces*, the elk, or moose, are circumpolar; *Cervulus*, the muntjac, is indigenous to Asia; *Hydropotes*, the water D., is a Chinese genus.

Kinds of Deer.—There are various kinds of D., such as the wapiti or Amer. D., the lambu D. of India, the Himalaya D., and the red D., which is the kind generally hunted in the Brit. Isles. Other species of D. in Great Britain are the fallow D. and the roe D. The red D. is of a reddish-brown colour, while from the tail underneath the body the colour becomes lighter. The red D. has ever been known by his horns, which differ materially from those of all other kinds of D. The horns consist of a beam from which points or processes project, a twelve-pointer being known as a 'royal' stag. The number of these points determines the age. The

yearling D. has no horns, but at two years old a short spire is thrown out. The age of the D. can also be deduced from the impression of its foot in the ground. If the impression measures full 2 in. at the heel he is 'warrantable,' if more he is large, heavy, and old; and if less, he is too young. The tread of a hind is much narrower than that of the male, particularly at the toe, whilst the hart's is broad and round at the point. The mark of a D.'s tread is called his slot; his haunt is termed his lair; where he lies down, his harbour or bed; where he rolls himself, his soiling pool; and his breaking place over a hedge, his rack. When he goes to water it is termed going to soil, if he is headed back he is blanchied; and if he stops in a riv. or lies down in a pool during the chase it is called sinking himself. Stags engage in ferocious single combat for predominance in a herd.

Deer-stalking.—Method used in approaching D. without being observed by the animal. To stalk is to approach unawares. In England this method of stalking the D. in order to shoot it is rarely adopted, but in Scotland it is generally in vogue. D.-hunting in England is chiefly confined to the W., in the cos. of Devon and Somerset, and also in the New Forest. It is probable that stag-hunting on Exmoor and the Quantocks derives some of its fascination from their unique wildness and picturesqueness. In N. America the method of stalking is largely used.

History.—The chase of the stag was considered one of the most princely and royal sports, and has existed from time immemorial; but whether it was conducted on its present lines until Queen Elizabeth's reign is doubtful. Historical records prove conclusively that there was kennelled at Simonsbath in this reign a pack of stag-hounds which hunted the D. on a similar system to that now in vogue. The method of stalking was not introduced until years later.

Methods of Hunting.—(1) By driving. (2) By stalking. Where the country was partially covered with wood, the forests were 'driven,' and the sportsmen occupied passes where they took their chance of sport, and this method is resorted to generally in the forest of Glengarry (Scotland) and in other places. But, generally speaking, the system has given way to the more exciting amusement of stalking. D., like other animals, seem to foresee change of weather. At the approach of a storm they leave the higher hills and descend to the low grounds, generally one or two days before the change. On the approach of a thaw they leave the low lands and go to the mts. They never perish in snowdrifts, as sheep do, but keep to the bare ground and feed on the tops of heather. When herds of D. are driven they follow each other in a line, so that when they cross the stalker it is customary for him to lie quiet and suffer the leaders to pass before he raises his rifle. If he were to fire at the first that appeared, he would probably turn the whole of them back. Or if he were

to run forward injudiciously after a few had passed, the remainder, instead of following the others in a direct line, would not cross him except under particular circumstances and disposition of ground, but would bear off an end and join the others afterwards. When D. are hard pressed by a dog, they run in a compact mass, the tall ones endeavouring to wedge themselves into it. They will also run in this manner when pressed by drivers on the open moor. D., except in embarrassed situations, always run up wind, and the instinct is strongly implanted in them. Thus they go forward over hill-tops and unexplored ground in perfect security, for they can smell the taint in the air at an almost incredible distance. On this account they are fond of lying in open quarries where the swells of the wind come occasionally from all quarters. By clever arrangement on the part of the stalkers, and by employing men in concealed positions to give them their wind, the D. may be driven down wind, and in certain cases they may easily be sent by a side wind to that side of the forest which they consider as their sanctuary. In large forests the method of stalking with the assistance of hillmen is generally adopted. These are placed at long intervals and help to drive the D., if possible, against the wind. This method, however, cannot be adopted in small forests, as too frequent a disturbance would make the D. forsake the ground. Trained dogs are used to chase the D. after he has been wounded.

Weapons.—The destruction of the woods, the substitution of the gun for the bow and arrow, formed quite an epoch in the habits and size of the D. as well as in the mode of killing. The bow had one advantage over the gun, viz. that of being noiseless, so that a stalker well concealed might repeat shots without giving much alarm. In Sutherland firearms were unknown until about the latter end of the sixteenth century, when a large kind of blunderbuss, named by the people *glas-nadhean*, was introduced. These, however, did not supplant the bow and arrow until after the middle of the seventeenth century. Spears were also formerly used, chiefly for killing wounded D. See Charles IX. of France, *La Chasse royale*, 1858; A. G. Cameron, *Wild Red Deer of Scotland*, 1923; H. Fraser, *Amid the High Hills*, 1923; and Lord Lathyrer, *Deer: Stalking in Scotland and New Zealand*, 1935.

Deerfield, tn. of Franklin co., Massachusetts, U.S.A., on the Connecticut and D. Rs., 33 m. N. of Springfield; much visited by tourists; it comprises sev. vils., many of the houses dating from the eighteenth century. There is a collection of colonial and Indian relics. For many years D. was the frontier post of New England on the N.W. It was repeatedly taken by the Indians. On Feb. 29, 1704, twenty savages with painted faces and hideous acclamations broke into the room of John Williams, minister of the gospel in D., and with 100 of his neighbours, 300 Indians carried him off to Montreal, murdering nineteen by the way,

300 m., and burning 1). before starting. Pop. 3000.

Deerhound, dog resembling the greyhound in general appearance, from which it probably sprung. Ds. are used particularly in deer-stalking, and are very quick runners with a keen scent. The chief points are as follows: Head long and tapering, broadest at the ears, with a flat skull and a black nose (though the nose may be blue in the blue-fawn variety); ears small, soft, and silky, set on high and folded back, and in colour dark, preferably black; neck long, with a good mane, with sloping shoulders and a prominent nape; stern long and tapering, well covered with hair; chest deep and broad; loins well arched and drooping towards the tail, with great breadth across the hips; legs broad and flat; forelegs straight with arched toes. The height varies from 28 to 30 in., the females being as small as 26 in.; weight from 80 to 105 lb., females from 70 to 80 lb.

Deer, Old, par. and vil. in Aberdeenshire, Scotland, 9 m. from Letterhead. The ruins exist of St. Mary's Abbey of D., which was founded in 1218-19. Near here Robert Bruce defeated the Comyns. Area 27,363 ac. Pop. 3700.

Dees, or **Dees-Magyaros**, tn. in Hungary, situated 37 m. N. by E. of Klausenburg. Noted for its salt mines and saline springs. Pop. 10,000.

De Falla, Manuel, *see* FALLA, MANUEL DE.

Defamation, in law, signifies a statement about a person which tends to expose him to hatred, contempt, or ridicule, or to injure him in the way of his trade or calling, or to cause him to be shunned or avoided by his fellow men. Where the statement is in writing or other durable or permanent form it is called a libel; spoken defamatory words are known as slander, though in Scotland this distinction does not exist. A libel may give rise to a criminal prosecution as well as to a civil action for damages, especially where it has a tendency to provoke a breach of the peace. The truth of the libel is no defence in criminal proceedings, save where it is for the good of the public that the statement in question should be circulated. In civil proceedings truth or justification is a complete defence. In slander certain classes of statements are said to be actionable *per se*, that is, the plaintiff is entitled to damages whether he can prove that he has suffered damage or not. Words which afford a cause of action without proof of special damage comprise four classes: (1) words spoken of a man in the way of his trade, business, profession, or calling; (2) words imputing to the person defamed a crime which if proved against him would render him liable to imprisonment or other bodily punishment as opposed to a mere fine; (3) words imputing that the person defamed is suffering from contagious disease, unfitting him for decent society; (4) words imputing unchastity or adultery to any woman or girl. It is no D. to publish in good faith any fair

comment on a matter of public interest, or a correct and fair report of public, judicial, or legislative proceedings; or to communicate in good faith to any person in a manner not in excess of the occasion any information or opinion which it is proper to communicate in the interest of that person, or of the person making the communication, or of the public. Some words are said to be absolutely privileged. Such are judicial utterances, statements made by witnesses on oath, words used by a member of Parliament in Parliament, or by a barrister in court in a case in which he has been engaged, and statements made before a select committee of the House of Commons. Other statements are said to enjoy a qualified privilege, i.e. there is no D. unless express malice can be proved. Reports of judicial and parl. proceedings belong to this class, and to be privileged must not only be fair and accurate, but must not have been pub. from any indirect motive. An apology is no defence to an action of libel or slander, but may go to mitigate the damages.

The lord chancellor appointed a committee under Lord Porter in 1939 to consider the present law of D. and to make recommendations. The committee was suspended owing to the war and its recommendations were not pub. until 1948. No large changes are recommended, but if the many recommendations made are accepted they will go far to meet the more serious complaints against the present system. The true function of the law of D. is the protection of reputation from improper attack, and it is implicit in the committee's proposals that it would be wrong to accede to the request of those who would whittle down this valuable and primary purpose. In the more publicised actions the damages awarded have sometimes been excessive judged by any standard, and the committee therefore suggest that the court of appeal should have power to vary the amount of any award, whether made by judge or jury. As regards 'unintentional defamation,' the committee, while not proposing to reverse the present rule (that a statement was not intended to be defamatory is immaterial in establishing liability), suggests that, if all reasonable precautions are taken, by giving appropriate publicity to a correction and apology (with payment of costs) to clear the reputation of a person unintentionally defamed, no monetary damages should be awarded. The committee, however, were unable to agree whether the plaintiff ought to prove, or the defendant disprove, intention and, unless Parliament itself resolves this difficulty, the ordinary rule relating to the burden of proof will apply. Though the law of libel differs in sev. important respects from that of slander and assimilation under the same rules would be theoretically sound, the committee are not in favour of it. Though they consider the distinction both arbitrary and illogical, they take the view that, were all slander to be actionable like libel, without proof of special damage, the scope for trivial but costly litigation might be enormously

increased. Fear of the law of libel has modified criticism of doubtful activities. Though the risk involved in exposure cannot be altogether avoided, the suggested extension of qualified privilege—so making proof of malice necessary for liability—to the reports of a much larger number of societies and organizations should prove most beneficial by widening the area of protected public criticism. (Cmd. 7356, H.M.S.O., 1948.)

Default, failure to perform some legal or quasi-legal duty. For example a defaulting trustee is one who makes a wrong use of money entrusted to him or who fails to render an account of same. In legal matters the failure to fulfil or obey certain rules of court places a party in D., and judgment by D. may be given against him.

Defeasance, in law, is either a condition relating to a deed, which on fulfilment defeats the force or operation of the deed and renders it void, or is itself a collateral deed made synchronously with a deed of conveyance, containing conditions, on the performance of which the estate created by the conveyance may be defeated. Ds. of freehold estates must be by collateral deed. Ds. may also be of terms of years, executory interests, bonds, and recognisances. Ds. as to title are now never used in practice the necessary conditions always being inserted in the body of the deed.

Defence, Civil, *see* AIR-RAID PRECAUTIONS.

Defence, Committee of, *see* COMMITTEE OF IMPERIAL DEFENCE.

Defence Medal, decoration of the second World War, granted for three years' service with forces in non-operational areas subjected to air attack or closely threatened; for one year's non-operational service with the forces overseas from or outside the country of residence; for three years' civil defence or other specified civilian service in military operational areas and for civil defence service in non-operational areas subjected to air attack or closely threatened. The time qualification in the case of mine and bomb disposal units of the forces is three months. The centre of the ribbon is flame-coloured and the edges are green, symbols of the enemy attacks on our green and pleasant land. Two black stripes represent the black-out. Those qualified for any one of the campaign stars may be granted this award in addition. Members of civilian services in the United Kingdom eligible for war chevrons for war service in the United Kingdom are entitled to the medal, as also are civil defence services in Gibraltar and Malta, etc. The medal is granted without regard to the period of service to those who may have received an award or commendation for brave conduct or commendation for valuable service in the air, provided that the recipient, when the commendation was earned, was serving in a category eligible for the medal.

Defence, Ministry of. The creation in Britain of a minister of defence, 'responsible to Parliament for certain subjects

affecting the three services and their supply', was announced in a White Paper issued on Oct. 5, 1946. The Prime Minister retains the supreme responsibility for defence, but the appointment of a minister of defence, other than the Prime Minister, to co-ordinate the strategic policies and supply programmes of the three services, was to be expected as a by-product of war experience. Although the Prime Minister can never detach himself from responsibility for national security, the military aim is not paramount in peace, and military preparations—and their co-ordination—become a specialised function for a minister giving it his whole time. The new plan is, in fact, an adaptation of wartime practice. The Prime Minister remains chairman of the Defence Committee, and the Chiefs of Staff Committee remains autonomous, enabling the chiefs of staff to speak direct to the Cabinet Defence Committee. The defence minister, as a rule, takes the chair at the Defence Committee 'when international relations are stable.' He is, however, more than an understudy for the Prime Minister, and, in effect, replaces the minister of production in the co-ordination of military supply and of the necessary finance. The Minister of Production's Council has now become the Ministerial Production Committee; the joint war production staff remains, though now under a permanent official chairman; and parallel to it is a new Committee on Defence Research Policy, also under a permanent expert chairman. As with the chiefs of staff, this part of the new organisation indicates a desire to give the fullest weight and freedom to technical advice in the framing of defence policy. One result of this new creation is the disappearance of the Committee of Imperial Defence; but it is claimed that the new mechanism will fit in well with existing and projected means of empire co-operation in military matters, but whether the interchange of service liaison officers will prove to be an efficient substitute for common action in research, supply, and military strategy can be judged only in the light of experience.

Defence of the Realm Act. This was the name applied to a series of legislative measures enacted at different periods of the First World War by the Brit. Gov. The Act was familiarly known as DORA, this name being derived from the initial letters of Defence of Realm Act. The first of the series, known as the Defence of the Realm Consolidated Act, 1914, was passed on Nov. 27, 1914. It authorised the trial by courts-martial, or in the case of minor offences by courts of summary jurisdiction, and punishment of persons committing offences against such regulations as might be made during the war for securing the public safety and defence of the realm by the king in council. Particular attention was directed to offences against the regulations designed (a) to prevent persons communicating with the enemy or obtaining information for that purpose or any purpose calculated to jeopardise the success of the operations of

any of his majesty's forces or the forces of his allies or to assist the enemy; or (b) to secure the safety of his majesty's forces and ships and the safety of any means of communication and of railways, ports, and harbours; or to prevent the spread of false reports or reports likely to cause disaffections to his majesty or to interfere with the success of his majesty's forces by land or sea or to prejudice his majesty's relations with foreign powers. The Act also made it lawful for the Admiralty or Army Council to take over (a) the whole or any part of the output of any factory or workshop engaged in the manuf. of arms, ammunitions, or warlike store; (b) such factories or workshops entirely. In May 1915 the Act gave wide powers to the State over the supply and sale of intoxicating liquors in certain areas. Though highly unpopular the regulations under this type of legislation were revived just before the outbreak of the Second World War, 1939—both Houses of Parliament simultaneously, on Aug. 24, passing the Emergency Powers Act, conferring wide powers on the gov. in time of emergency. Including power to conscript men up to forty years of age, and to take over industrial establs., etc.

Defender of the Faith, title given to Henry VIII. by Pope Leo X. in 1521, to show the Church's appreciation of Henry's defence of the papacy against Luther. It is now part of the regular title borne by the sovereigns of England, as seen on the coins of the realm where the wording is '... Fidel Defensor.'

Deferred Pay was a deduction from the pay of a soldier of the Brit. Army whilst serving, which was paid to him in a lump sum when he finally left the service. It was abolished in 1898 on the introduction of messing allowance. D. P. still exists in the Brit. service, but only in the case of the non-European personnel of certain colonial regiments, e.g. the Hong Kong Singapore Brigade. The rate of D. P. is £3 a year, or, in the case of periods of less than a year, 5s. for each completed period of thirty days.

Defland, Marie de Vichy-Chamrond, Marquise du (1697-1780), one of the most brilliant Fr. letter-writers of the eighteenth century. In 1718 she married the Marquis du D., from whom she soon afterwards separated. Her *salon* in the rue St. Dominique was frequented by the most celebrated literary men of the day, and she made herself a conspicuous and notorious figure in Parisian society. In 1753 she became blind. From 1766 she corresponded with Horace Walpole. Most of her correspondence has been pub.

Defiance, cap. of D. co. in Ohio, U.S.A., 50 m. from Toledo. It manufs. dairy products, automobile bodies, cotton gloves, etc. A fort named D. was built here, 1794. Pop. 9700.

Deficiency Advances, see NATIONAL DEBT.

Defile, long narrow pass or way in which troops can march only in file, or with a narrow front; derivation of the verb D., which means to march in a line or

file; one by one, i.e. single or Indian file, or two by two, i.e. double file.

De Filippi, Cav. Filippo (1869-1938), It. surgeon and explorer, was b. at Turin, and educated at the medical school of Turin Univ. He held posts in surgery at the univs. of Bologna and Genoa. Always a keen Alpine climber, he took part in the duke of Abruzzi's Alaskan expedition, ascending Mt. St. Elias; and also in the expedition to the W. Himalaya and Baltoro Glacier in Karakoram. Under the auspices of the It. and Indian Govs. he led a scientific expedition to Karakoram, 1913-14. He pub. works on all these expeditions: *The Ascent of Mount St. Elias* (1900); *Ruvenzori* (1909); *Karakoram* (1912); *Himalaya, Caracorum e Turkestan Cinese* (1924); works on surgery and chem.; and *Italy's Protection of Art Treasures and Monuments during the War* (1918); *The Relations of the House of Savoy with the Court of England* (1920).

Definition, brief and concise description of a thing by its properties; the process by which the common qualities of objects belonging to any given class are determined and expressed, so as to distinguish effectively between that class and other classes. According to old scholastic logic, a D. must give the mark of the genus (*nota generalis seu genus*) and of the species (*nota specialis seu differentia specifica*); genus denoting the distinctive qualities belonging to the whole class, and species marking out the difference of the part in question.

Deflagration, rapid combustion of charcoal when heated with a nitrate or chlorate. If this occurs when a natural salt is heated with charcoal, the presence of a nitrate is indicated, since chlorates do not occur naturally. If the flame be violet, then potassium nitrate is indicated; while if it be yellow, sodium nitrate is present.

Defoe, Daniel (c. 1659-1731), author of *Robinson Crusoe*, was the son of an Eng. butcher of St. Giles, James Foe. Daniel changed his name to the more aristocratic De Foe. At a dissenting academy he received a good education, and for a brief space was ambitious to become a dissenting minister, but the idea was renounced, and about 1685 he entered the hosiery business. It is known that he travelled in France and Spain, volunteered in King William's army in 1688, and made other unsuccessful attempts to embark on a business career, but about 1700 he definitely settled down in London to eke out a livelihood by journalism and vigorous pamphleteering. His rough but lively satire of 1701, entitled *The True-born Englishman*, was a spirited apology of the king's Dutch nationality, based on the folly of any people claiming purity of blood and in particular of the Eng., who are—according to D.—a most composite race. But it was his *Shortest Way with the Dissenters* (1702) which first made him notorious throughout the country, for the House of Commons ordered the book to be burned; and the following description of him was advertised to ensure his speedy apprehension: He is 'a middle-sized, spare

man, about forty years old, of a brown complexion, and dark brown-coloured hair, but wears a wig; a hooked nose, a sharp chin, grey eyes, and a large mole near his mouth.' This famous treatise was alleged to be written by a 'high-flying' churchman, who advocated a second Bartholomew's Day as the only effective means of getting rid of the obnoxious nonconformists. The fact that the Church party at first accepted the remedy as a serious proposal naturally aggravated their indignation, when it became known that the whole pamphlet was a monstrous satire on their violent intolerance. However, the 'unabashed Defoe' found the ordeal of thirce standing in the pillory fairly pleasant, as the entire populace was on his side. His release



DANIEL DEFOE

After the engraving by M. Vandergucht.

from Newgate, where he was confined, was due to Harley's intercession with the queen in 1704. The manly dignity of his poem, *A Hymn to the Pillory* (1703), reveals D.'s character in its most favourable light. In 1704 appeared the first number of his periodical, the *Review*, which was issued three times a week, and which has never been surpassed for its combined qualities of diversity of matter, excellence of style, and rapidity of production. Over 5000 printed pages in all were compiled by D. himself for this periodical alone. Passing over his fine denunciation of indiscriminate charity (1704) and his elaborate *History of the Union of Great Britain* (1709), we come to his masterpiece, the immortal *Life and Strange Adventures of Robinson Crusoe*, of York, Mariner (1719). This amazing work of fiction, the verisimilitude of which impresses the most indifferent reader, was based on the four years' solitary residence on the is. of Juan Fernandez of Alexander Selkirk, with whom D. became personally acquainted on his return. It is safe to say that no other writer of fifty-eight has ever produced a work comparable to *Robinson Crusoe* for the apparent artlessness of its unadorned yet intensely dramatic and arresting

style, or for the irresistible reality of its atmosphere, which is, after all, one of pure romance. In the same year he pub. a sequel, *The Further Adventures of Robinson Crusoe*, but perhaps only one in twenty thousand who has read the first has read the second—for indeed the genius that makes Part I. immortal is no longer there. D. wrote a third part in 1720, *Serious Reflections during the Life and Surprising Adventures of Robinson Crusoe*, but it is quite unreadable and never reprinted.

In a short article it is impossible to mention one quarter of what this most prolific of authors wrote. In his *An Appeal to Honour and Justice* (1715) he attempted to apologise for his discreditable time-serving policy in politics. Under Godolphin he had accepted a regular salary as a staunch Whig (1706), but he unblushingly turned Tory so as to serve his old patron Harley when he returned to office, 1710. His *Memoirs of a Cavalier* and *Captain Singleton* (1720), and *A Journal of the Plague Year* (1722) are all excellent illustrations of his power to work up circumstantial, but fictitious, detail into the most convincing of narratives. Lord Chatham believed the first to be a true hist., and few would doubt but that the plague was described by an actual eye-witness, anxious only to leave behind him an authentic record. Yet D. was a child of seven when it occurred. Prosperity rewarded D.'s indefatigable activities, and he was able to build himself 'a very handsome house' in Stoke Newington. He was buried in Bunhill Fields. Perhaps his fecundity, his vivid imagination, his literary versatility, and his impressive style have been somewhat obscured by the unheroic, unromantic character of his moral standard (as exemplified in the realistic novel, *The Fortunate Mistress*, (1724)) and beliefs, as also by his offensive, though by no means unique, political inconsistencies. The best collected ed. of D.'s works is the *Novels and Selected Writings*, 14 vols. (1927-28). See G. Chalmers, *Life of Defoe*, 1785; W. Chadwick, *Life and Times of Daniel Defoe*, 1859; W. Minto, *Defoe* (Eng. Men of Letters), 1879; T. Wright, *Life of Daniel Defoe*, 1891; W. P. Truitt, *Daniel Defoe: How to Know Him*, 1916; P. Dutton, *Defoe et ses romans*, 1921; and J. Sutherland, *Defoe*, 1937.

Deportment, in Scottish law, denotes the forcible opposition or resistance made to an officer of the law who is at the time employed in executing a legal warrant.

De Forest, Lee, Amer. physicist and wireless technician, b. Council Bluffs, Iowa, 1873. Graduated from the Sheffield Scientific School of Yale Univ. in 1899. He has devoted his whole life to wireless, being a pioneer in the development of wireless telephony in America. He has taken out over 200 U.S.A. patents on radio telephony and telegraphy inventions. One of his most important is the 'Audion' detector, oscillator, amplifier, which made possible transcontinental telephone service both by wire and wireless. He also carried out experiments on phonofilms, later known as 'talkies.' He

became vice-president of the Radio Telephone Company in 1913.

Deformity, condition arising from imperfect or perverted development of any structure of the body. Ds. may be congenital or acquired. The conditions giving rise to congenital abnormalities are studied under the name of teratology. Acquired Ds. are due to accident, disease, the maintenance of abnormal conditions in the course of a trade or occupation, or deliberately contrived compression at the dictate of custom, religion, etc.

Defregger, Franz, Ritter von (1835-1921), Austrian genre painter. The picture that first made him famous was 'Speckbacher,' painted in 1868, a picture of the Hofer rising in 1809. After this came 'The Dance,' 'The Prize Horse,' and genre pictures of Tyrolean peasant life. In 1876 he painted his famous 'Victors Return,' and in 1898 his masterpiece, 'Hofer going to his Death.' See life by H. Hammer, 1940.

Degas, Hilaire-Germaine Edgard (1834-1917), Fr. painter and engraver, was b. at Paris and educated at the Ecole des Beaux-Arts. He was one of the most celebrated impressionist painters. His subjects include portraits, racehorses, ballet girls, and the circus, and he painted in oils, water-colours, and pastels; he was also a lithographer. Of his works the chief are 'War in the Middle Ages' (Salon); 'Steepchase'; 'Family Portraits'; 'Ballet of La Source'; 'Portraits of Criminals'; 'Races'; 'Interior of a Cotton-Broker's Office at New Orleans'; and 'The Rehearsal.' In the Luxembourg Gallery at Paris are the 'Danseuse sur la scène'; 'Danseuse nouant son brodequin'; 'Un Café, Boulevard Montmartre'; and 'Les Figurants.' See lives by J. Meier-Graefe, 1924; A. Vollard, 1928; and R. Schwabe, *Degas the Draughtsman*, 1948.

De Geer, Louis Gerhard, Baron (1818-1896), Swedish statesman who will be remembered for his reform of his country's representative system (which had existed from the later Middle Ages) to a bicameral elective system in 1865-66. Amongst De G.'s books, some of which are written in fine style, are *Minnesteckning öfver Hans Järta* (1874); *Minnesteckning öfver A. J. v. Hopken* (1881); *Minnesteckning öfver B. B. von Platen* (1886); his own *Minnen* (1892), invaluable for its historical information; some novels and essays. See C. G. Malmstrom, *Historiska Studier*, 1897.

Degeneration, Physical, see PHYSICAL DETERIORATION; BIOLOGY.

Dégérando, Joseph Marie, Baron (1772-1842), Fr. statesman and author of philosophical and philanthropic works, was b. at Lyons. He went to Germany in 1797 and became a private in Massena's army, during which time he wrote *Des Signes et de l'art de penser*. He was afterwards appointed secretary-general to the ministry of the interior by Napoleon, and later vice-president of the Council of State. Of his works the most important are *De la génération des connaissances humaines* (1802); *Histoire comparée des systèmes de philosophie* (1803); *Education des sourds-*

muets de naissance (1827); and *Du Perfectionnement moral, ou de l'éducation de soi-même* (1828).

Deggendorf, tn. in Lower Bavaria, Germany, rich in churches: the Church of the Pilgrimage to the Holy Sepulchre was begun in 1337. A favorite summer resort in beautiful scenery. Pop. 8000.

D'Eglantine, Philippe François Nazaire Fabre, see FABRE D'ÉGLANTINE.

Deglutition, see SWALLOWING.

Dégoutte, Jean Marie Joseph (1866-1938), Fr. general who gained distinction in the First World War when commanding the Fr. Sixth Army during the Ger. retreat from the Marne in July and Aug. 1918. He qualified at the Ecole Normale Supérieure but suddenly decided to go to St. Cyr, was commissioned to the 4th Zouaves, and went to Tunis. Studied law and languages, becoming proficient in Chinese, Malagasy, and Ger. He served in the Chinese war of 1900, and before the First World War held an important post in Morocco. Commanded the Moroccan div. in the earlier part of the war. Promoted again in 1917 he was given command of the Sixth Army in the final phase of the war, reaching the rank of general of div. Was commander-in-chief of Fr. troops in occupation of Rhine from 1919 to 1924. Member of Supreme Army Council.

Degree of Latitude, length along a meridian such that the difference between its N. and S. ends is one D. (360th part of the circumference of a circle). A D. of longitude is the length between two meridians that make an angle of one D. at the poles.

Degrees in Arts were first granted in the Middle Ages. Even in Rom. times the expression arts or liberal arts was freely applied to certain branches of learning, and about A.D. 1200 those who devoted themselves to the study of philosophy and science in contradistinction to theology, medicine, and law were said to belong to the Faculty of Arts. Their course of study embraced the 'Trivium,' that is, grammar, dialectic, and rhetoric, and the 'Quadrivium,' which included arithmetic, geometry, astronomy, and music. For such were the divs. of knowledge handed down by the schools of the Rom. Empire. In the twelfth and thirteenth centuries the earliest univs., such as those of Bologna, Paris, Oxford, and Cambridge, began to develop, and it was found necessary to confer some recognised licence on those eligible to teach. Originally, therefore, the degree was a certificate endowing its owner with the privilege of teaching in public at the various centres of learning. The pope was regarded as the final giver of every degree, and no community of pedagogues, however learned, could call themselves a univ. unless they had obtained the papal recognition. Thus in Paris the Master of Arts degree was primarily nothing more than a formal permission from the chancellor of Notre Dame Cathedral for its holder to take his master's chair among his brother profs. and to embark on his pedagogic career.

Candidates for D. in A. were obliged even as late as the eighteenth century to take part in dialectical discussions or disputations—a performance known as the keeping of his 'Act.' On three occasions the aspirant was obliged to read a Lat. thesis and then to enter into a debate, conducted on a syllogistic form, with a doctor of the faculty and one or more opponents. At first the subject for discussion was almost invariably taken from Aristotle, but later it was based, for one of the occasions at least, on the *Principia*, or some other treatise of Newton. The last vestige of this system of 'disputation' or 'Act,' for the B.A. degree finally disappeared from Cambridge Univ. in 1838, when written examinations became the one recognised test. Gradually the latter had superseded the disputations, as it was found impossible by this means adequately to examine the knowledge of the student in such subjects as mathematics. It soon became the rule in leading univs. that no matriculated student could attain to a degree unless he had conformed to regulations regarding attendance at lectures and residence in the univ. At Paris in the fifteenth century a course of four years' study was one of the qualifications necessary for the master in arts, the minimum period for a degree in most univs. to-day being three years. In Cambridge an honours degree in arts is now called a tripos, a name originating from the fact that on the day for conferring new degrees it was the custom for an old bachelor to sit on a tripos or stool and to enter into a mock and humorous disputation with his new associates. The Bachelor of Arts degree is of comparatively recent growth, and in Scottish univs. there is an M.A., but no B.A. degree. Mathematics and natural philosophy, classics, and mental science and Eng. literature are the three depths, proficiency in any of which entitles to an M.A. degree. Modern languages, hist., literature, mathematics, and classics are the recognised subjects for arts degrees in Oxford, Cambridge, and London Univs., etc., to-day. Many univs. give D. in A. *honoris causa* to men who have distinguished themselves in statesmanship, letters, art, science, etc., but who have not earned the distinction by passing the qualifying examinations. In some univs. the M.A. degree may be bought. Most of the univs., except Oxford and Cambridge, now admit women to their D. in A., London and Dublin being pioneers in this reform. Other arts degrees besides those already mentioned are J.L.A. of St. Andrews (Lady Literate in Arts), Ph.D. (Doctor of Philosophy), the crowning distinction in Amer. univs.; Ph.B. (Bachelor of Philosophy); A.M. (*Artium Magister*), the Amer. Master of Arts; A.B. (*Artium Baccalaureus*), the Amer. Bachelor of Arts; Litt.D. (Doctor of Literature); B.Litt. (Bachelor of Literature); D.Phil. and B.Phil. (Doctor and Bachelor of Philosophy).

Degrees in Commerce, see under COMMERCIAL EDUCATION.

Degrees in Law, see under LEGAL EDUCATION.

Degrees in Science are of comparatively recent institution. They are of two kinds: Bachelor of Science (B.Sc.) and Doctor of Science (D.Sc.). Oxford Univ. has a 'Final Honour School' in Natural Science, and a B.Sc. may be taken by original research or dissertation. At Cambridge the tripos may be taken in natural science and in mechanical science (engineering). At London a B.Sc. degree may be taken by men and women, *internally*, i.e. when a specified number of lectures have been attended at a recognised school of the univ., or *externally*, by home students. The prov. univs. and colleges, e.g. Manchester, Sheffield, Leeds, etc., have made a special point of scientific study. At the Armstrong College students who have passed the required examinations in engineering, mining, manufs., or agriculture are admitted as associates in physical science of the Durham Univ.

De Gubernatis, Angelo (1840-1913), It. author and orientalist, b. at Turin. He was appointed prof. of Sanskrit at Florence in 1863, and at Rome in 1891. His works include *Zoological Mythology* (1872); *Storia comparata degli usi Natalici* (1872); *Ricordi biografici* (1873); *Mitologia Vedica* (1875); *Mythologie des Plantes* (1878); *Dizionario biografico degli Scrittori contemporanei*; and *Storia universale della Letteratura* (1882-85).

Dehiscence, in botany, term indicating the bursting of the author of a flower to allow the escape of the pollen; in the case of fruit it indicates the break-up of the fruit or seed case to allow the seeds to escape. Fruits are said to be indehiscent when the ripe seed-vessel falls to the ground without letting the seeds escape. There are three kinds of D.: *valvular*, the seed-vessel parting in divs.; *transverse*, the seeds escaping by the falling of a lid; *porous*, seeds escaping through small pores.

Dehiscent Fruit, see under FRUIT.

Dehra, cap. of the D. Dun dist. in the United Provs., India. Is prettily situated in the midst of a mt. valley 2300 ft. above sea level. The temple of its founder, Guru Ram Rai, at the end of the seventeenth century, forms the chief ornament of the tn. Here are the Indian Forest College and the Prince of Wales Military College. D. enjoys a great reputation as a hill resort, and has a large resident pop. of Anglo-Indian and Indian pensioners. Pop. 50,000.

Dehra Dun, a dist. in the United Provs., India, consists of a broad but barren valley, deluged in the unhealthy rainy season and dried up in the summer. The extensive woods consist mostly of pines, and, on the slopes of the Himalayas, of cedars and silver firs. The 180,000 natives, mostly Hindus, cultivate maize, millets, sorghum, and rice.

Dehydrogenation (in chem.). When hydrogen is removed from an organic compound and no other elements replace it, the process is known as D. Many aromatic compounds may be dehydrogenated

by heating with sulphur or with selenium. Thus cyclohexanol will give phenol, and cyclohexyl mercaptan thiophenol, when heated with sulphur. See also OXIDATION.

Deianeira was the daughter of Althæa and Cæneus, and the sister of Melæger. Hercules and Achelous fought for D.; Hercules was victorious and so claimed her for his wife. She was the unwilling cause of her husband's death by sending him the robe which was presented to her by the centaur Nessus. The robe was supposed to preserve love, but in reality it was poisoned. When Hercules, through having won the robe, was dead, D., in despair, put an end to her own life. See R. Jebb, introduction to the *Trachinæ* of Sophocles, 1882.

Deidamia, daughter of Lycomedes (q.v.), king of the Dolopians in the is. of Scyros. When Achilles was concealed there in maiden's attire, she became by him the mother of Pyrrhus or Neoptolemus.

Deification, see APOTHEOSIS.

Dei Gratia (Lat. by the grace of God), expression supposed to have first been used at the Council of Ephesus (A.D. 431), and signifying a complete dependence on the will of God. Until the fifteenth century it was used only by the clergy after their names, as an expression of dependence. After that date it was assumed by kings, but the signification changed from that of dependence to assertion of power and the idea of the theory of the divine right of kings.

Delces, or **Dajauku**, first king of Media, who, according to Herodotus, reigned from 709 to 645 B.C., though Noldeke gives from 700 to 647 as his dates.

Delotarus (d. 30 B.C.), tetrarch of Galicia, received from the Rom. Senate the title of king of Galicia and Armenia, in return for his services during the Asiatic wars. In the civil war he joined Pompey. Cæsar took from him Armenia, and left him only his title. He was accused of plotting against Cæsar's life, and Cicero defended him in an oration still extant.

Deiphobe, Sibyl at Cumæ, daughter of Glaucus.

Delphobus, son of Priam and Hecuba. He married Helen after the death of Paris, and was killed by Menelaus at Troy.

Deira, anct. Anglian kingdom, extending from the Tees to the Humber. With its N. neighbour, Bernicia, it was afterwards merged in the kingdom of Northumbria.

Deirdre, mythological heroine of one of the three tragic Gaelic poems of Ireland. Destined to be the bride of King Conchobar, D. falls in love with Naisi (or Noisi), son of Usnagh, and is protected by him and by his brothers. The king slays the three young men, and the poem, *Deirdre's Lament over the Sons of Usnagh*, recalls the happy days spent with Naisi in Alba (i.e. Scotland), on Lough Etive and contrasts it with her present misery in the house of the king. See K. Meyer, *Ancient Irish Poetry*, 1911.

Deir-el-Kamr, or **Deir ez Zor**, tn. on the W. side of Lebanon, on healthy fruitful

terraces, with about 8000 inhab. (Maronites, Druses, and Jews), who produce wine and silk.

Deism (from Lat. *deus*, god), strictly speaking the belief in a god, synonymous with theism as opposed to atheism. The term is generally used, however, in opposition to revealed religion, and especially to Christianity. Thus Deists are those who believe in a personal God, the Creator of the universe, but regard him as detached from the world to which he has made no revelation. The term is still further restricted to the movement which gained ground in England at the end of the seventeenth century, and flourished during the former half of the eighteenth century. It was characterised by a strong aversion from Christianity, and a belief that the light of nature and reason are sufficient guides in doctrine and practice. It called forth many defenders of orthodoxy from among the Queen Anne prelates, and it had but little final effect on Eng. thought. It considerably influenced Voltaire, and had much in common with the later Ger. rationalism. Lord Herbert of Cherbury is regarded as 'the father of English deism,' and the other chief names in the movement are Charles Blount, Matthew Tindal (author of *Christianity as Old as the Creation*), Wm. Wollaston, Thomas Woolston, John Toland (author of *Christianity not Mystical*), Anthony Ashley Cooper, third earl of Shaftesbury, Viscount Bolingbroke, and Anthony Collins.

Déjazet, Pauline Virginie (1797-1875), Fr. actress. b. at Paris. She went on the stage when she was five years old, played at the Théâtre des Jeunes-Élèves, in 1821 at the Gymnase, in 1834 at the Théâtre du Palais-Royal, from 1844 to 1849 at the Variétés, and at the Théâtre Déjazet.

De Kalb, city of De K. co., Illinois, U.S.A., 60 m. W. of Chicago. Barbed wire was invented and is still made here, also pianos and wagons. There is a trade in canned vegetables, etc. Here is the Illinois State Teachers' College. Pop. 5100.

Dekkan, see DECCAN.

Dekker, Eduard Douwes, or 'Multatuli' (1820-87), Dutch writer, b. at Amsterdam, who became assistant-resident at Lelak, W. Java. He began to protest against the abuses of the Dutch colonial system, and being threatened with dismissal, he resigned his post, and returned to Holland. His fame as an author was made by his brilliant romance, *Max Havelaar* (1860), exposing the scandals of the Dutch Gov. in Java. His *Ideeen* were pub. 1862-77, and another novel, *De Geschiedenis van Wouterje Piderse* (1890). See life by J. Saks, 1937.

Dekker, Thomas (c. 1570-c. 1641), Eng. dramatist and pamphleteer. b. in London, but little is known of his life. His name is often mentioned in Henslowe's *Diary* in the last years of the sixteenth century as being in receipt of loans and payments for writing various plays in conjunction with Ben Jonson, Drayton, Wilson, Chettle,

and others, and he seems at that period to have been much in request as a playwright. Henslowe also mentions the fact of having advanced him forty shillings to release him from prison, where he was confined for debt; but in 1613-16 he was again in prison for the same reason. He is mentioned in the *Diary* for the first time on Jan. 8, 1597, as having sold a book, i.e. the MS. of a play. He has been called the Dickens of the Elizabethan period, though in life and character the two men were utterly unlike. D. wrote without any thought of reforming things he saw, wishing only to depict them; he had the great power of being able to make imaginary figures seem real, though often writing under great pressure. His plays afford information about the details of lower-class life, such as the interiors of shops, houses, and taverns, and the haunts and habits of vagabonds, and other London life. They also contain a few charming songs, which show that he must have been possessed of very great lyrical talent. His best plays include *The Shoemaker's Holiday* (1600); *Old Fortunatus* (1600); *The Honest Whore*, in two parts (1604-30); *The Virgin Martyr* (1622); and *The Witch of Edmonton* (pub. 1658). In 1603 he wrote *The Patient Grissel* with Haughton and Chettle; with Webster in 1607 *Westward Ho!*, *Northward Ho!*, and *Sir Thomas Wyatt*; and *The Sun's Darling* with Ford, pub. in 1656. His best plays were ed. by E. Rhys in the Mermaid series (1887). See A. C. Swinburne, 'Thomas Dekker' in *The Age of Shakespeare*, 1908; Mary L. Hunt, *Thomas Dekker*, 1911; E. K. Chambers, *The Elizabethan Stage*, 1923; and U. M. Ellis-Furnor, *The Jacobean Drama*, 1936.

De la Bèche, Sir Henry Thomas, see BÈCHE.

De Laborde, Henri François (1764-1833), Fr. general, son of a baker, b. at Dijon. He joined in the wars of the revolution on the side of Napoleon. In 1793, after the battle at Saverne (Zabern), he was made general. He was for a time governor of Corsica. In 1812 he served with Napoleon in the Russian war.

Delacroix, Ferdinand Victor Eugène (1798-1863), Fr. historical painter, leader of the Romantic movement, b. at Charenton, near Paris, his father being foreign minister under the Directory. He was a brilliant colourist and a bold innovator. His earliest success (1822), 'Dante crossing Acheron in Charon's Boat' (Louvre), is an epoch-making picture. He also produced lithographic illustrations of *Hamlet*, *Macbeth*, and of Goethe's *Faust*. In 1845 he was employed to decorate the library of the Luxembourg, and the ceiling of the Salon de la Paix in the Hôtel de Ville, 1853. 'The violence of Delacroix's character seems to show itself in the scenes of frenzy and bloodshed which he loved to paint and around which his imagination continually played. In his many pictures of animals fighting, the masks of tigers and horses assume expressions of malevolence that are disconcertingly human. . . . If we do not look for *joie de vivre* in the work of Delacroix we certainly find the

emotional force of his nature translated into terms of colour—colour glowing luridly among the swirling shadows of a general conflagration. The superbly inventive colour distracts attention from what is happening to the persons depicted; the wonderful painting of the madman's clothes in his 'Tasso in Prison' makes us oblivious of what Delacroix most wants the observer to feel—the desolation of the poet's condition.' (Edward Sackville West). See lives by C. Maclair, 1909; R. Eschollier, 1926-28; and H. Graber, 1938; and his *Journal* (abridged in Eng. trans. by W. Pach), 1948.

De Koven, Henry Louis Reginald (1859-1920), Amer. composer, b. at Middletown, Connecticut. First served as a musical critic; studied music in Europe; among his compositions are *Don Quixote*, *Maid Marian*, *The Golden Butterfly*, *The Wedding Night*, *The Three Dragoons*, *Robin Hood* (1890) (this last-named being one of the most successful of Amer. comic operas), *The Canterbury Pilgrims* (1917), and *Rip Van Winkle* (1920).

Delagoa Bay, see LOURENÇO MARQUES.

Delagrè, Léon (d. 1910), was one of the first aviators in Europe. He began by flying a biplane, and was an exhibitor of one in 1908. For some time before his death he flew a monoplane, attaining a speed of 50 m.p.h. on this machine at Doncaster. He was killed while flying before a crowd of people at the Croix d'Huis aerodrome.

De la Mare, Walter (b. 1873), Eng. poet and novelist, was b. at Charlton, in Kent, of Scottish and Huguenot descent. Educated at St. Paul's Cathedral Choir School, he entered the city office of the Anglo-Amer. Oil Company in 1889, but always devoted his leisure time to his writings. Under the pseudonym of 'Walter Kamal' (an anagram on part of his surname), he pub. *Songs of Childhood* in 1902, and two years later his first novel, *Henry Brooken*. In 1906 he produced a volume of *Poems*. The story of *The Three Mulla-Mulgars* and the psychic novel *The Return*, which won the Polignac prize, appeared in 1910. Then came in succession *The Listeners and other Poems* (1912), *Peacock Pie* (1913), *Motley and other Poems* (1918), *Flo'ra* (1919), and *Collected Poems, 1901-18* (1920). In 1921 he produced varied works: *The Veil and other Poems*; *Crossings*, a play; and a story, *The Memoirs of a Midgel*. *The Riddle and Come Hither* appeared in 1923; *Ding Dong Bell* (1924); *Broomsticks* (1925); *The Connoisseur* (1926); *Told Again and Stuff and Nonsense* (1927); *Stories from the Bible* (1929); *Poems for Children* (1930); *The Fleeting and other Poems* (1933); *Early One Morning* (1935); *The Wind Blows Over* (1936); *This Year, Next Year* (1937); *Memory and other Poems* (1938); *Behold, this Dreamer* (1939); *Pleasures and Speculations* (1940); *Bells and Grass* (1941); *Collected Poems* (1942); *Love* (1943); *Collected Rhymes and Verses* (1944); *The Burning Glass* (1945). For the beauty and mysticism of his poetry he is frequently compared with Coleridge and

Blake, and for his symbolism with Maeterlinck. See R. L. Megroz, *Walter de la Mare*, 1924, and F. Reid, *Walter de la Mare, a Critical Study*, 1926.

Delambre, Jean Baptiste Joseph (1749-1822), Fr. mathematician and astronomer. He early attracted the friendship of the Abbé Delille, and obtained a place in the Collège de Plessis. Afterwards he entered the Collège de France, where he taught and studied under Lalande, and on the latter's death succeeded to the professorship of astronomy. With Méchain he was appointed by the Fr. Gov. to measure the arc of the meridian between Barcelona and Dunkirk. His chief works were the *Base du Système Métrique Décimal* (1806-10) and *Histoire de l'Astronomie*, 1817-27.

Deland, Margaretta Wade (1857-1945), Amer. authoress, b. at Allegheny, Pennsylvania; daughter of S. Campbell. She was educated at Pelham Priory, a school kept by King women near New York. She taught industrial design in the Girls' Normal College, New York, 1878-79. Her many tales include *John Ward, Preacher* (1888); *The Awakening of Helena Ritchie* (1906); *The Iron Woman* (1911); *The Hands of Esau* (1914); *Around old Chester* (1915); *The Vehement Flame* (1922); *New Friends in Old Chester* (1924); *The Kays* (1926); and *Captain Archer's Daughter* (1932).

Delane, John Thaddeus (1817-79), an editor of *The Times*, was perhaps the most distinguished journalist of his day. He was offered the editorship of the great newspaper when he was but twenty-four years of age, and with but little hesitation he took up the difficult and onerous position, which he held until within two years of his death. He devoted his whole life, and all his energy, to the interest of *The Times*, and under his direction it attained so high a position that, even under the altered conditions of journalism, no organ of public information, however great its circulation, can hope easily to rival it. A regular diner-out. D. knew everybody, and many of his acquaintances were of great use to him in his professional career. He seldom wrote for his paper, but was a rigorous censor of his contributors. See life by A. I. Dasent, 1908.

Delano, Jane Arminda (1862-1919), Amer. nurse who distinguished herself in the First World War. B. at Townsend, New York, she first trained as a teacher, then later as a nurse at the Bellevue Hospital School of Nursing in 1884. During the Sp.-Amer. war she became interested in Red Cross work, and from 1911 devoted her life to its organization. In 1918 she was made director of the dept. of nursing, supplying nurses to the army and navy. For her services in France she was awarded the Distinguished Service Medal and the Amer. Red Cross.

Delany, Patrik (c. 1685-1768), Irish divine, was a popular preacher, and an intimate of Swift when that great man returned to his native country after the death of Queen Anne. It was his affection for the dean of St. Patrick's that caused him in later life (1754) to publish his *Observations upon Lord Orrery's Remarks*

upon the Life and Writings of Dr. Jonathan Swift, in which he rebutted certain damaging statements made by Orrery. In 1743 D. married Mrs. Pendarves, who wrote her reminiscences, issued posthumously.

De la Pole, see POLIX.

De la Ramée, Louise, see OUIDA.

Delarey, or De la Rey, Jacobus Herkllass (1847-1914), assistant commandant-general of the Transvaal forces in the Boer war from 1899 to 1902. In 1899 he opposed Lord Methuen at Belmont, at Enslin, at Modder R., and at Magersfontein. In 1900 he defeated Gen. Clements at Nooitgedacht; was himself repulsed near Ventersburg in 1901, at Vlakfontein, and at Moedwill, where he made an attack on Maj.-Gen. Kekewich. In 1902 he captured von Donop's convoy near Wolmarinstad, also Lord Methuen's at Tweebosch. On March 31, 1902, he was defeated by Gen. (later Lord) Kitchener. He joined the Boer peace delegates on April 9 at Klerksdorp, and signed the conditions of surrender at Vereeniging, May 31. In Sept. he came over to England with Louis Botha and Christian de Wet. He became a member of the Transvaal Assembly, and later a senator of the Union of S. Africa. He was shot dead near Johannesburg by a police patrol who mistook his car for that of a criminal gang, Sept. 16, 1914.

De la Rive, Auguste Arthur (1801-73), Swiss physicist, b. at Geneva; son of Charles (Gaspard de la R., prof. of pharmaceutical chem. there. At twenty-two became prof. of natural philosophy in the Geneva Academy. He investigated the temp. of earth's crust, and invented electro-gilding. He wrote *Traité d'électricité théorique et appliquée* (1851-58).

Delaroche, Hippolyte, called Paul (1797-1856), Fr. painter. He studied under Gros, and, like Delacroix, revolted early against the classicism of the school of David. He soon gained popularity, and met with far less opposition than Delacroix. In 1827 he gained the decoration of the Legion of Honour for his 'Capture of the Trocadéro,' and in 1833 was made prof. at the Ecole des Beaux-Arts. After a visit to Italy he received a commission in 1837 for a picture 27 metres long, to decorate the lecture theatre of the Ecole des Beaux-Arts. The picture represents the artists of his times assembled in groups on both sides of some white marble steps, at the top of which are seen all the sculptors and architects of the Parthenon. The figures are all admirably represented. It was finished in 1841, and in 1855 was badly damaged by fire; D. set himself to repair the damage, but d. before he could do so. In 1835 he exhibited 'Head of an Angel,' a study of Horace Vernet's daughter, whom he loved with an absorbing passion all his life, and from the grief caused by her death he is said never to have recovered.

De la Roche, Mazo (b. 1885), Canadian novelist. She was awarded the *Atlantic Monthly's* \$10,000 prize for her novel *Jalna* (1927), the first of a series of stories of three generations of the Whitecoaks—a tempestuous family living on an Ontario estate and ruled by an iron-willed matri-

arch. Other books of the family chronicle: *Whiteoaks of Jalna* (1929, dramatised 1936); *The Master of Jalna* (1933); *Young Renny* (1935); and *Whiteoak Harvest* (1936). Other books: *Portrait of a Dog* (1930); *Growth of a Man* (1938); *The Sacred Bullock* (short stories, 1939); and *Whiteoak Heritage* (1940).

De la Rue, Warren (1815-89), Eng. astronomer, b. in Guernsey. He made a particular study of the solar conditions in their relation to electricity, and greatly advanced the development of solar physics and astronomical photography. His work, *Researches on Solar Physics*, was pub. 1869-70, and *On the Phenomena of the Electric Discharge* in 1881.

De La Salle, see LA SALLE, RENÉ

ROBERT CAVELLER, and JEAN BAPTISTE. De Latre de Tassigny, Jean, Fr. general, see under WESTERN FRONT in SECOND WORLD WAR.

Delanunay, Louis Arsène (1826-1903), Fr. actor, son of a wine-seller. He made his appearance at the Comédie Française as Dorante in Corneille's *Le Menteur*. Then began his long and brilliant career in young lovers' parts, in which he acted until sixty years of age. He played with success in the dramas of Victor Hugo and Molière, but it was especially in de Musset's plays that his talents found their best expression.

Delavigne, Jean François Casimir (1793-1813), Fr. poet and dramatist, b. at Le Havre. At the age of sixteen he composed an ode on the birth of Napoleon's son. During 1815 he wrote a series of satires against the restoration of the Fr. monarchy, which was known as *Messe-messes*, and he wrote most of his prin. plays between the years 1820 and 1830. They are *Les Vêpres Siciliennes* (tragedy) (1818); *Les Comédiens* (1820); *Le Paria* (1821); *L'Ecole des Vieillards* (1823), one of his best works; *Marino Faliero* (1829); and *Les Enfants d'Edouard* (1833). He wrote a hymn called *La Parisienne* for the revolution in 1830, and *La Varsouienne* at the time of the Polish rebellion. Probably his best lyric was that called *La Toilette de Constance*. In 1832 he wrote a tragedy called *Louis XI.*, which was founded upon Scott's *Queen of Burward*. In 1835 *Don Juan d'Autriche* was produced. A collection of his works was pub. in 1885.

Delaware, S. Atlantic state, and one of the original thirteen states of the U.S.A. Except for Rhode Is. it is the smallest, having an area of only 2057 sq. m. Its boundaries are Pennsylvania on the N. and N.W., D. R., the largest in the state, D. Bay, and the Atlantic Ocean and New Jersey on the E., Maryland on the S., and Maryland and Pennsylvania on the W. The hilly country of the N. yields some minerals, including kaolin, granite, brick and tile clays. The forests of cypress swamp in the S. once afforded excellent timber. Brandywine R. is famous for the revolutionary battle of 1777. Some of the tidal salt marshes along the bank have been reclaimed by dikes, and therefore rendered tillable. Agriculture is the chief industry of the

state, Indian corn, wheat, oats, and potatoes being the crops most cultivated, while the hay harvest brings in a large share of revenue; 85 per cent of the state's total acreage is in farms. It ranks second in the U.S.A. in tomato-packing. Sev. varieties of fruit are also grown profitably, notably peaches. The fisheries include shad, oyster, crab, and sturgeon. Clay products include brick and tile, and stone, sand, and gravel are quarried. Iron, steel, and leather industries all flourish, the prin. manufacturing centre being Wilmington, which, like New Castle and Lewes, has also an excellent harbour. D. has a good railroad (of over 325 m.), and therefore transportation facilities, and the state is crossed by a canal connecting D. and Chesapeake Bays. Settled first by Swedes and Finns from Christiania in 1638, D. passed into the hands of the Dutch in 1655, and nine years later was surrendered, together with New Amsterdam (New York), to the Eng. In 1682 Wm. Penn obtained proprietary rights in the state, which finally procured a constitution in 1776. Although a slave state up to 1861, D. was not in favour of secession, and sent many men to join the ranks of Lincoln. The state possesses a small univ. (1833), which is situated in Newark. The name of the state is derived from that of the Brit. colonial governor, Thomas West, Lord de la Warr (q.v.). The pop. of D. is 266,500. The prin. cities are Wilmington, 112,500; Dover, 5500; Newark, 4500; New Castle, 4400; Milford, 4200. See E. N. Vallandigham, *Delaware and the Eastern Shore*, 1922, and W. A. Powell, *History of Delaware*, 1928.

Delaware, co. seat of D. co., Ohio, U.S.A., on the Olentangy R.; it has sulphur and iron springs in the vicinity, and is the seat of Ohio Wesleyan Univ. (1844) and many seminaries. Rutherford Hayes was b. here. Pop. 8900.

Delaware River, U.S.A., is formed by two branches which rise in the W. Catskills of New York and unite at Hancock, D. co. Hence it flows E. to Jersey, where it deflects through the Kittatinny Mts., forming the D. Water Gap; 40 m. below Philadelphia it expands into D. Bay, an estuary 11 m. wide at its entrance and 60 m. long, which, owing to its breakwater, constitutes a spacious harbour. Length of riv., 410 m.

De la Warr, Thomas West, Baron (1577-1618), colonial governor of America, b. in Hampshire. In 1602 he succeeded to the titles and estates as the third (counting from Lord West, the second founder) or twelfth (counting from Roger de la W., the first founder) baron. In 1609 he was a member of the Virginia Company Council, and was appointed governor and captain-general of Virginia for life. He sailed in 1610 with three ships and 150 settlers equipped at his own expense and landed at Jamestown. He was a just and efficient ruler, rebuilt Jamestown, and constructed two forts. In 1611 he returned to England, but hearing of the misrule of his deputy, he set sail for Virginia, but *d. en route*. See DELAWARE.

Delbrück, Martin Frederick Rudolf (1817-1903), Prussian statesman, b. in Berlin. He was given charge of the commercial and industrial dept. of the Board of Trade in 1859, and did much to create the Zollverein. He helped Bismarck considerably before the Franco-Prussian war in holding together the S. Ger. states, and during the war was of the greatest service at home. Later he differed somewhat from Bismarck on the tariff question. He resigned in 1876 and sat as a member of the Reichstag.

Delbrück, Hans (1848-1929), Ger. historian, b. at Bergen, Rugen. He was appointed in 1896 prof. at the univ. of Berlin, in succession to Treitschke. As an historian he consistently took war as the basic fact of all hist. His *Art of War* was always widely read in Germany. It is said that the strategical conception of the double encirclement adopted by Hindenburg and Ludendorff at the battle of Tannenberg was suggested by D.'s analysis of the battle of Cannae. After the First World War he began a *History of the World*, of which he had completed 4 vols. at his death. Among his other works are lives of Frederick the Great, Napoleon, Moltke, and Ludendorff, and works on military strategy.

Delcassé, Théophile (1852-1923), Fr. statesman, b. Nov. 1, at Pamiers, Ariège. He was a prominent figure in European politics for twenty-five years. He helped to bring about the Franco-Russian alliance, was one of the architects of the Franco-It. *rapprochement*, and was largely responsible for the Entente Cordiale. He was thirteen times a minister, and foreign minister for seven years continuously. He first read for the Bar, and then joined Gambetta on the staff of the *Republique Française*, writing articles on foreign policy. Began his political career as deputy for Foix in 1889, and was colonial minister in the Dupuy Cabinet, 1894. He was made minister of foreign affairs in 1898 under Brisson, in which year he settled the differences between Great Britain and France over the Fashoda (q.v.) question. He held the same position in the Dupuy (1898), Waldeck-Rousseau (1899), Combes (1902), and Rouvier (1905) Cabinets. From the outset, it was his settled policy to lift France from the state of weakness and isolation in which it had been the aim of Germany to keep her ever since the treaty of Frankfurt, and it has been said of him by Gauvain that his diplomacy saved his country. He became minister of marine under M. Briand, 1909, and continued to hold office under MM. Monis and Poincaré. He was on the committee which, in 1911, investigated the general conditions of the Fr. Navy. As mediator between the U.S.A. and Spain he was entirely successful, and peace between these two nations was concluded in Paris. In Feb. 1913 he was appointed ambas. at St. Petersburg, the appointment being generally regarded as indicating increased emphasis of the Dual Alliance, more especially directed against Ger. ambitions; and on his return, in Feb. 1914, he ex-

pressed his suspicions of Ger. aggressive designs. He negotiated the famous pact of London, by which the Allies agreed to make peace overtures only by common agreement. He was not successful in an attempt to revive the Balkan Entente, and on Oct. 14, 1915, he retired from office after a dispute with the Fr. Cabinet on the Salonika expedition, and thereafter dropped out of Fr. politics, mainly through disappointment when Bulgaria entered the war. There can be no doubt of his intense devotion to the service of his country. As an orator he eschewed rhetoric but employed language which was classical in its purity. See G. Reynald, *La Diplomatie française: l'œuvre de Théophile Delcassé*, 1915, and C. W. Porter, *The Career of Théophile Delcassé*, 1930.

Del Credere Commission, higher rate charged by an agent, in respect of which he guarantees the solvency of the purchaser. The contract need not necessarily be in writing, and the principal has no right to make a claim on his agent before he has sought to recover his due from the third party.

Deledda, Grazia (1875-1936), It. author, b. at Nuoro in Sardinia. She began to write at an early age, and her novels and short stories, which are in a naturalistic vein, are remarkable for the sympathy and humour with which they describe the life of the peasants of Sardinia. She has the classic qualities—simplicity, freshness, and that fine restraint that leads the great mind into intensity of effects. Among her best known novels are *Elias Portolu* (1902); *Dopo il divorzio* (1905; Eng. trans. *After the Divorce*); and *La Madre* (1920; Eng. trans. *The Mother*, 1928). Other works: *L'Ombra del Passado* (The Shadow of the Past) (1908); *Canne al vento* (Reeds in the Wind) (1913); *La fuga in Egitto* (The Flight into Egypt) (1926). She married Palmerino Maddesani, a gov. official, in 1897, and leaving Sardinia for the first time she settled down to a happy married life in Rome. Her literary reputation grew, and in 1926 she was awarded the Nobel prize for literature. See SHORT STORY.

Delegates, Court of, was the prin. court of appeal in eccles. causes, and from the decisions of the Admiralty court. By a statute passed in the second year of the reign of William IV. the court was abolished, and its powers transferred to the Privy Council.

Delfico, Melchiorre (1744-1835), It. economist, b. at Teramo in the Abruzzi. His special study was political economy and jurisprudence, and the writings he pub. had great influence in the country, and many abuses were corrected. One of his most important works led to the abolition in Naples of certain restrictions in connection with the sale and exportation of agric. produce. Made a counsellor of state in the brief reign of Joseph Bonaparte in Naples. Employed on the new judicial organisation of Naples by Murat. President of the commission of archives under King Ferdinand I. Granted a large pension on retirement. Among his notable works was his *Researches in*

Roman Jurisprudence (1790). In this and other works, which have been reprinted sev. times, he anticipated the scepticism of Niebuhr, and treats the early hist. of Rome as fabulous, denying to the Romans, before the second Punic war, all arts but that of agriculture and making war. See G. de Tipaldo, *Biografia degli Italiani illustri*, 1834; and G. de Filippis Delfico, *Della Vita e delle Opere di Melchiorre Delfico*, 1836.

Delft, one of the most charming tns. in Holland, 8 m. N.W. of Rotterdam, having clean canals bordered with lime-trees; the R. Schie passes through it and out into the Maas at Delfshaven. D. is an almost perfect specimen of a seventeenth-century Dutch tn. Here William the Silent was assassinated, and the hole in the staircase made by the bullet can still be seen. The first floor of his residence, the Prinsenhof, is used as an Orange museum. Beneath his monument in the New Church are the vault of the House of Orange and the memorial of Grotius, the great jurist. In the old church is the monument of Adm. van Tromp, a victor in thirty-two battles, and that of Piet Hein, admiral of the W. India Company, who in 1628 captured the Sp. treasure fleet. The Raadhuis or tn. hall in the Groot market contains portraits by van Mierevelt, who was b. here. The famous D. pottery (*g.v.*) business has been revived. There are manufs. of yeast, alcohol, glue, and gelatine, dyes, machinery, cigars, telegraph and telephone cables. Pop. 61,600.

Delft Pottery, brown earthenware, covered with an opaque enamel for painting upon, and a thin transparent glaze over all. It was introduced at D. towards the last decade of the sixteenth century by Dutch potters who sought to reproduce an imitation of Chinese blue-painted white porcelain, and the attempt was successful enough to lead to a large export trade. The ware, after being baked in a kiln, was steeped in liquid tin enamel, which latter, after absorption, left a thick white layer for painting upon. The articles made were chiefly of a domestic kind, such as large dishes or platters, ewers, mugs, etc. In England blue and white D. was made in Lambeth early in the seventeenth century; John Ariens van Hamme was granted a patent there in 1760 for making tiles and porcelain in the Dutch manner. Bristol D. is a buff ware, often speckled with blue or purple. Liverpool D., also bluish in tint, was made first in the eighteenth century. Staffordshire D. was produced in the seventeenth and eighteenth centuries, and resembles that of Liverpool and Lambeth.

Delgo, or **Delje**, tn. of upper Egypt, situated on the Nile. Pop. 11,000.

Delhi, city and prov. in the Punjab dist., India. The city, which is now the official cap. of India, as it was that of the Moghul empire from 1637, is on the r. b. of the Jumna, 112 m. N.N.W. of Agra, and is served by five railways, including the E. Indian, N.W., and Bombay-Baroda lines. Gold and silver filigree work, glazed pottery, wood carving, shawls, and

jewellery are the chief industries. Wheat, sugar-cane, barley, and cotton are grown in the dist. (1290 sq. m.), whose hard and stony soil is irrigated by the gov. canals of Agra, W. Jumna, and Ali Mardan. The pop. of the city (including New Delhi and Shahdara) is 521,800, and of the prov. 917,900 (area of prov. 574 sq. m.). Its historic 'Ridge' will ever be remembered as the base of the Brit. during the terrible siege of 1857, when the mutineers held out for three months. The death of the gallant Nicholson, the capture of the king of D. by Hodson, and the explosion of the ammunition magazine by Willoughby, to whom a memorial was erected in 1888, are indelible incidents in the pages of the Indian Mutiny. D. has been successively



E. N. A.

IVORY-CARVER OF DELHI AT WORK
IN THE BAZAAR

the scene of the great Durbars of 1877, 1903, and 1911, when Queen Victoria, King Edward VII., and King George V., who, with Queen Mary, attended the celebration in person, were respectively proclaimed empress and emperors of India. On Dec. 12, 1911, his Imperial majesty announced that the administrative cap. was to be moved from Calcutta to Delhi, where a new city was built on the E. slopes of the hills to the S. of D. New D. is free from floods, has a natural drainage, and allows for a pop. of 70,000. It is built on a rocky platform. The architecture of the city is W. with distinctive Indian features, and was designed by Sir Edwin Lutyens (*q.v.*) and Sir Herbert Baker (*q.v.*). The main buildings are the two secretariat buildings, Government House and the legislative building or Parliament, a round pillared building, half a mile in circumference. Other important buildings are the museum, the record office, and the houses of the members of the governor-general's Executive Council. All gov. depts. have their headquarters at New D. The main avenue, the King's Way, is spanned by a triumphal arch, which is the all Indian war

memorial to the Indian regiments that fought in the First World War. In 1922 a Bill was passed for the estab. of a teaching and residential univ. at New D. During the building operations of the city 290,000 men were employed.

Delhi Conference, called in 1940 on the proposal of the viceroy, Lord Linlithgow, to develop the war capacities of the participating countries—Australia, New Zealand, S. Africa, India, Burma, S. Rhodesia, Ceylon, the E. African dependencies, Hong Kong, Brit. Malaya, and Palestine—particularly in regard to the maintenance of the Brit. forces in the Middle E. The aim of the conference was to relieve Great Britain of such of her war burdens as could be borne by the participating countries in the development of their own resources to meet both their own and the ever-increasing war needs of Great Britain. Associated with the conference was a Brit. Ministry of Supply mission which went to India to investigate the measures to be taken in India to expand the production of munitions and other war supplies. An E. Group Council, with headquarters in India, was formed to put into effect the joint war-supply policy for the E. hemisphere prepared by the conference.

Delia, quinquennial festival of Apollo at Delos.

Delian League, see DELOS.

Delibes, Clément Philibert Léo (1836–91), Fr. musical composer, b. at St. Germain-du-Val (Sarthe). His first noteworthy composition was the ballet music for *La Source*, which was produced in 1866. This was very successful, and he followed up with another similar work, called *Coppélia*, in 1870, also an opera entitled *Le Roi l'a dit* (1873). In 1876 he produced a mythological ballet, *Sylvia*, and then a grand scena, *La Mort d'Orphée*. In 1865 he was second director at grand opera, and a prof. of the Paris conservatoire in 1880.

Delilah, Samson's Philistine mistress, who treacherously wrought his undoing (see Judges, xvi, 4 et seq.). See also SAMSON. The story is the theme of Saint-Saëns's opera *Samson et Dalila*, produced at Weimar in 1877.

Delille, Jacques (1738–1813), Fr. poet. His trans. of Virgil's *Georgics*, 1769, brought him into prominence, and on Voltaire's recommendation he was admitted into the academy. His didactic poem, *Les Jardins* (1782), received extravagant praise. During the revolution he settled in London, where he trans. *Paradise Lost*. On his return to France he produced a trans. of the *Aeneid*.

Deliquescence (Lat. *deliquescere*, to melt), chemical term signifying the property common to certain compounds (caustic potash, chloride of calcium, etc.) of absorbing moisture from the air and becoming wet and sticky. Deliquescent substances form a class of *hygroscopic* substances, the other class being those that absorb moisture but do not become wet and sticky, e.g. black oxide of copper.

Delirium, temporary derangement of the mental processes, similar to the condition of insanity, but usually asso-

ciated with some form of bodily disease. D. may accompany any feverish condition, and varies in intensity according to the extent and degree of the fever; inflammatory disease affecting the brain is particularly liable to cause D. A toxic condition of the blood induced by the absorption of drugs such as opium, chloroform, and alcohol is apt to cause mental aberration. Exhaustion, whether as the effect of wasting disease, prolonged bodily exertion, or nervous strain, is also a possible cause. The types of mental perversion are illusions, hallucinations, and delusions. Illusions are false perceptions, where the image formed in consciousness does not correspond with the external object; hallucinations are fictitious perceptions, where images are formed without any external object; delusions are false ideas, where the subject conceives a state of things to be true without any foundation in reality.

Delirium tremens is one of a series of symptoms arising from continued indulgence in alcohol. It rarely happens that a single bout of heavy drinking culminates in this form of alcoholism, although the effects of long continued drinking may show themselves after a particularly heavy bout. Some individuals seem altogether immune, the poisonous effects of alcohol not including actual D. From the fact that many patients have more than one attack, it appears either that the first attack predisposes to another, or that certain individuals are especially susceptible. Lately it has been shown to be due to a deficiency of vitamin B upsetting the normal metabolic process of the brain. Any bodily disorder acts as a predisposing cause, and the patient complains of general ill health just before the characteristic symptoms set in. He has a feeling of restlessness during the day, and either does not sleep or is troubled with bad dreams during the night. Mental confusion increases until any form of mental derangement may appear. There are muscular tremors and continual perspiration. The patient has hallucinations, seeing unpleasant animals all around him; he may have delusions, being convinced that he is being confined by enemies. He is liable to be violent on occasion, and may need mechanical restraint. The attack usually lasts about four to six days, ending in a deep sleep, and leaving the patient in an extremely exhausted state. The greatest danger lies in the exhausting effects of the disorder, and the treatment should aim at sustaining the patient. Alcohol should be withdrawn entirely, and mechanical restraints should be avoided, all efforts being made to soothe the patient by endeavouring to persuade him that he is in the hands of friends.

Delisle (Lisle de), Guillaume (1675–1726), Fr. scientist of Paris, eldest son of the historian and geographer (d. 1720), pupil of his father and of Cassini. He was one of the founders of modern geography. Before him all maps were based on those of Ptolemy (second century A.D.). He pub. about 134 maps, many

purely geographical, others in connection with eds. of voyages of discovery. In 1700 appeared his map of the world, and celestial and terrestrial globes. In 1702 D. became a member of L'Académie des Sciences, in 1718 geographer to King Louis XV. He wrote *Atlas Géographique* (not pub. until 1789), and contributed to *Mémoires de l'Académie des Sciences*.

Delisle, Joseph Nicholas (1688-1768). Fr. astronomer, b. in Paris. He was first drawn to study astronomy by an eclipse of the sun on May 12, 1706. In 1725 he went to St. Petersburg by order of the Empress Catherine, and there founded an observatory. He is chiefly famous as the originator of a method for observing the transits of Venus and Mercury by instants of contacts.

Delisle, Léopold Victor (1826-1910). Fr. historian and librarian, b. at Valognes, Manche. From 1874 to 1905 he was general administrator of the Bibliothèque Nationale in Paris, and in 1897 a catalogue of the Bibliothèque Nationale was begun under his supervision. He wrote *Catalogue des actes de Philippe-Auguste* (1886), etc.

Delitzsch, Franz (1813-90), celebrated theologian and Hebraist, was b. at Leipzig. His great learning and work diffused theological knowledge and criticism not only in Germany but also in England and America. His commentaries on Genesis, the Psalms, Proverbs, and Ecclesiastes (1847) were included in the complete commentary on the O.T., ed. by Keil and D. His other works are *System der biblischen Psychologie* (1855); *Jesus und Hillel* (1867); and a trans. of the N.T. into Heb. (1877).

Delitzsch, Friedrich (1850-1922). Ger. Assyriologist, son of Franz D., who wrote many important works, the chief being *Assyrische Studien* (1874); *Wo lag das Paradies?* (1881); *Assyrische Grammatik* (1906); and *Die grosse Täuschung* (1920). He also gave some lectures on *Babel und Bibel*, which, owing to the Ger. emperor's personal intervention, caused a good deal of discussion.

Delitzsch, tn. of Saxony, Germany, 12 m. N. of Leipzig. It is noted for manufs. of sugar, cigars, chocolate, and shoes, and rolling-mills. Pop. 16,500.

Dellum, anct. geography, was a tn. of Greece, situated on the coast, in Boeotia, about 25 m. N. of Athens. It was the scene in 424 B.C. of a battle, when the Athenians were defeated by the Boeotians.

Delius, Frederick (1863-1934). Brit. musical composer, of Dutch and Ger. ancestry, was b. at Bradford, Yorkshire. Educated at Bradford Grammar School and the International College, Isleworth. He at first entered his father's business of wool importer, travelling to Germany, Sweden, and France, but in 1884 he went to Florida to grow oranges. Here he bought a piano and received instruction from the Brooklyn organist, Thomas F. Ward, who lived with him on the plantation. D. had played the piano as a small child, and when about seven years of age had been given violin lessons, which he had continued in Germany under Hans Sitt.

After a period of music-teaching in America, he returned to Europe, and at the Leipzig Conservatoire in Aug. 1886 studied under Hans Sitt, Reinecke, and Jadassohn. His orchestral suite, *Florida*, was performed in 1888, with Grieg and Sinding in the audience. In the same year he made Paris his home, and for six years composed operas, a string quartet, and a sonata. His friends at this period included Ravel, Strindberg, and Gauguin, and he met and married the artist, Jelka Rosen. In 1897 he provoked a storm in Sweden by his satirical rendering of the Swedish national anthem. In May 1899



Hardt & Fry

FREDERICK DELIUS

his music was performed at the old St. James's Hall, London, meeting with both adverse and enthusiastic criticism. In the same year he settled down on a small property at Grez-sur-Loing, near Fontainebleau, where he lived and composed until his death. A D. festival, organised by Sir Thomas Beecham in London in 1929, aroused much enthusiasm, performances being given of *A Mass of Life*, *Ipplachia*, and extracts from the operas *Fennimore and Gerda* and *A Village Romeo and Juliet*. *A Mass of Life* (*Zarathustra*), which is regarded as his greatest composition, is an epic of initiation, of the bringing to birth of God in Man, and has been described as 'a work which in its grandeur, its breadth of vision, and its wealth of beauty is unsurpassed by the most monumental achievements in music' (*A Dictionary of Modern Music and Musicians*, 1924). D.'s music is marked by a rare sense of introspection. This is exemplified alike in his earlier and later work, e.g. in his sonata *Paris*, which is far from reflecting

the popular fallacy of a garish and gay city, and his *Brigg Favr*, a splendid ruminative sonata. In 1930 he produced a third sonata, said to have been begun before his eyesight failed. This exhibits the same subtly delicious and slow opening, spirited and elegant *andante scherzando*, and sad introspective close as are to be found in *The Walk to the Paradise Garden* and the *Three Pieces*. Opinion is somewhat divided on the merits of D.'s music. His emotional range was limited, his rhythmic subtlety not marked, and as he relied mainly on his harmonic resources the result is often a certain monotony of mood and texture. See Clara Delius, *Frederick Delius: Memories of My Brother*, 1935; Sir T. Beecham, *A Mingled Chime*, 1941; N. Cardus, *Ten Great Composers*, 1945; and A. Hutchings, *Delius*, 1948.

Delius, Nikolaus (1818-88). Ger. philologist and Shakespearian scholar, b. at Bremen. From 1855 to 1880 he was a prof. at Bonn. His prin. work was *Abhandlungen zu Shakespeare* (1878 and 1887).

Dell, Ethel May (Mrs. Gerald T. Savage) (d. 1939), Eng. novelist, whose first book was *The Way of an Eagle* (1912). After that she produced over twenty vols.—novels and collections of short stories. She married Lt.-Col. G. T. Savage, D.S.O. in 1922. Her stories, as well as her verses (a small book of which appeared in 1923), appealed to readers who unite a love of romance with a pious orthodoxy. Among her novels were *The Knave of Diamonds* (1913); *The Rocks of Valpre* (1914); *The Keeper of the Door* (1915); *Greatheart* (1918); *The Obstacle Race* (1921); *The Allar of Honour* (1928); and *Honeyball Farm* (1937).

Della, Casa Giovanni, see CASA.

Della Cruscan Academy (Crusca Accademia della), body of Eng. people who resided in Florence in 1785 and pub. under the title of *Florence Miscellany* worthless poetry. These works were pub. in England in the *World* and the *Oracle*, and enjoyed a wonderful degree of popularity until Gifford in his *Baviad* and his *Mæriad* severely criticised them. These criticisms were so merciless that the school entirely died out.

Della Porta, Giambattista (c. 1541-1615), It. physicist, was b. and d. in Naples. As a youth he travelled in Italy, Spain, and France, and when only about fifteen had already formulated the first three vols. of his *Magia Naturalis*. He took part in the foundation of the Accademia dei Oziosi in Naples, then later, himself, founded the Accademia Secretorum Naturæ. Pope Paul V. caused the latter to be closed, but in 1610 D. P. was admitted to the Accademia dei Sinceri. Besides his works on natural magic, optics (including the camera obscura), gardening, physiognomy, and other subjects, he wrote sev. successful comedies in his later days which were collected and pub. in Naples in 1726.

Della Quercia, Jacopo (1374-1438), It. sculptor, b. at La Quercia near Siena, son of a goldsmith. Executed a beautiful tomb for the wife of Paolo Guinigi, tyrant

of Lucca, and the Fonte Gaia, built in the square at Siena, 1409-19. He partly decorated the portal of San Petronio, Bologna, with sculptural reliefs.

Della Robbia, see ROBBI.

Dellys, small seaport in Algeria, with 4000 inhab., of whom about 1000 are Europeans. It has a church, hospital, school of arts and crafts, and large barracks.

Delmenhorst, tn. in the free state of Oldenburg, Germany, with 24,700 inhab., noted for manufs. of linoleum, textiles, and with rolling-mills.

De Long, George Washington (1844-81), Amer. explorer, native of New York. He took part in a relief expedition to the Arctic, where Charles Francis Hall was exploring Melville Bay (1873). In 1879 he commanded the *Jeannette* on a Polar expedition, when in 1881 the ship foundered, and after months of hardship he succumbed in N. Siberia. See *Voyage of the 'Jeannette'* (1882), ed. by his wife.

Delorme, Philibert (c. 1510-70), Fr. architect, b. at Lyons, studied in Rome, one of the great exponents of the Renaissance style. Patronised by Catherine de' Medici. He constructed the Tuileries, in collaboration with Jean Bullant, by order of Charles IX. His masterpiece was the Château d'Anet (1552-59), which was built for Diane de Poitiers. Some of his work is to be seen at Chameoncaux, and the tomb of St. Denis remains as a perfect specimen of his art. See studies by L. C. Colomb, 1882, and H. Clouzot, 1910.

Delos, smallest (about 3 m. long and 1 to 1½ m. broad) and most famous of the Cyclades Is. in the Ægean. Its modern name is Mikra Dili, lying between Megali Dili (anc. Rheneia) and Myconus. Its name (Δῶλος) refers to the legend that suddenly it rose above the surface of the waves, and that, whereas at first it floated, Zeus fastened it to the bottom so as to make it a safe refuge for Leto, who was there able to give birth to her twin offspring, Diana and Apollo. Henceforward the little is. was sacred to Apollo, within whose precincts were built many temples and treasures, including a shrine in his own honour. D. was famous for the splendour and solemnity of her festivals, to which men came from all corners of the earth, and the periodic festival was also frequented by hundreds of merchants; for on the fall of Corinth in 146 B.C. D. became a great mart—a centre for the extensive trade between S. Europe and the Asiatic coast. Her excellent roadstead became known to slave traders, who often bartered as many as 10,000 slaves a day at D. Many laws and customs bear witness to the inviolable and holy character of the shrine. The tn. of D., built at the base of the great granite crag known as Mt. Cynthus, never recovered from its devastation during the Mithridatic war of 87 B.C. Half-way up the slope of the hill Cynthus ten great blocks of granite form a vaulted chamber which was the anc. temple seen by Æneas when he paid his homage to the city of Apollo (Æneid, iii. 84). Between

Cynthus and the sea may still be seen the ruins of temples, courts, and colonnades, even a portion of the colossal statue of the god himself and the remains of the shining city. See A. E. Haigh, *The Attic Theatre*, 1889, and W. A. Laidlaw, *A History of Delos*, 1933.

Delphi (now Kastri), tn. situated on the S.W. spur of Parnassus in the valley of Phocis. It was so called from Delpheus, the son of Apollo, but Pytho was also a popular name for the city, as it was here that Apollo, as a baby, slew the serpent Python. The story of how Latona's son gained possession of the oracle, the great glory of D., was dramatically represented each year at the festival of Septeria. At D. was guarded the sacred stone, the *omphalos* or navel, which was supposed to mark the centre of the earth. Legend gives the following account of how the seat of oracle came to be founded. There was a cleft in the ground, the vapour from which caused a gouty to gesticulate and dance in the most frenzied manner, and to utter weird expressions, accepted as inspired prophecies. Accordingly a temple over the spot was erected to Apollo. At first the oracles, which were always sung by a priestess called Pythia, were delivered only on Apollo's birthday, but later, if the sacrifices were propitious, the Pythia prophesied each day. These oracles were given in ecstacy and often very ambiguous and metaphorical hexameters, until men sarcastically remarked on the imperfection of the prosody of the god, who was, notwithstanding, the patron of all the poets, after which they were enunciated in prose. Up to the time of the Persian wars all Gk. states and many foreigners from Italy and Asia, as for instance the famous Croesus of Lydia, came to consult the god on such vital questions as the sending out of colonies, the declaration of war, and the enactment of new laws, but after that time honour and glory fell away from the sanctuary because of the venality, deceit, and strong Spartan sympathies of the priesthood. The temple, the exterior of which was Doric, and the interior Ionic, was the repository of splendid votive offerings and statues, many of which were ruthlessly carried away by Nero to Rome, and later by Constantine the Great to adorn his new cap. During the Sacred war (356-346 B.C.) the Phocians sacked the treasures, and were afterwards condemned for this sacrilege to pay 10,000 talents to the shrine. The Delphic temple was the chief sanctuary of the Amphictyonic league, which controlled international right, and from 586 B.C. onwards celebrated the famous Pythian games. The theatre of D., which is one of the best preserved, lies to the S.W. of the temple. No doubt D. was an information bureau which had its intelligence agents everywhere throughout Greece. That for a thousand years it maintained its illimitable prestige by pure trickery is unlikely. 'It is neither easy,' said Aristotle, of oracular dreams, 'to despise such things, nor yet to believe them.' Except after consultation with

D. no Gk. colony was ever founded, and even Plato thought the advice of D. a wise preliminary in all national undertakings. There were dignity and pathos in the last of its oracles to the Emperor Julian: 'Go ye and tell the emperor that the carved work of this sanctuary is cast down upon the ground, and the god thereof hath no longer where to lay his head. And the laurel of his divination is withered, and the waters that spoke with voices are dried up.' See T. Dempsey, *Delphic Oracle*, 1918; F. Poulsen, *Delphi*, 1920; P. Hutton, *Greek Cities*, 1932; and P. de la Coste-Messelière, *Delphes*, 1943.

Delphin Classics, set of sixty-four vols. of Lat. and Gk. classics, ed. in France from 1674 to 1730 by thirty-nine scholars under the direction of Montausier, Mme Anne Dacier, Bossuet, and Huet. They were for the use of Louis XIV.'s son, called the Grand Dauphin. They are now of little use.

Delphinidae, see DOLPHIN.

Delphinium, extensive genus of the ranunculaceae order, abounding in temperate parts of the N. hemisphere and cultivated in gardens under the name of larkspur. *D. Ajacis*, the common larkspur, is often cultivated for its flowers, and has usually a single carpel; *D. consolida*, a hardy ann., has also one carpel, and its varieties are grown under the name of rocket larkspurs. *D. Barlowii* is a magnificent double-flowered perennial hybrid; *D. grandiflorum*, *D. Sibiricum*, and others constitute the bee larkspurs, so named from their resemblance to that insect; *D. staphisagria*, the stavesacre, inhabits warmer countries of S. Europe, and its seeds produce the poisonous alkaloid 'delphinine,' used in medicine.

Delphinus, or The Dolphin, small constellation near Aquila. From time immemorial it has been identified with a dolphin, the Romans calling it Vector Arionis (the bearer of Arion) and the Gks. the Sacred Fish.

Delphos, city of W. Ohio, U.S.A., 70 m. S.W. of Toledo, with railway shops. Pop. 5700.

Del Rio, city of S.W. Texas, U.S.A., co. seat of Val Verde co., a trading centre, shipping wool and mohair. Pop. 13,300.

Delta (from the shape of the Gk. letter Δ, delta), name applied to alluvial tracts of land enclosed between the bifurcating branches of a riv. and the sea which receives them. The term was first used with reference to the mouth of the Nile. Ds. are formed by the solid matter or fine silt, which is brought down in suspension by all rivs., and which is the measure of the denudation they accomplish in their course. The formation of Ds. seems to depend rather on the absence of opposing currents, where the rivs. reach the sea, than on the amount of sediment carried down. For where there are strong ebb tides or ocean currents the detritus is deposited out at sea. Thus Ds. nearly always occur in inland lakes, in sheltered bays, and especially in the tidelose estuaries of the Mediterranean. But it would seem that every riv. tends to form a D., and in support of this theory it may be noted

that all large estuaries are being gradually silted up. The La Plata, for example, is full of shallows and sandbanks, and Darwin held that the green pampas was merely the result of sediment accumulated in a former and larger estuary of that river. As regards the great D. of the Nile (8569 sq. m.), the old belief that Egypt was the gift of that riv. is strictly true with reference to lower Egypt. This D. begins to be formed 90 m. from the sea, and at its greatest breadth is 85 m. across. But one of the greatest Ds. in the world is that of the Ganges. The enclosed region of 31,880 sq. m. is itself traversed by innumerable streams that are continually interlacing. Over the D. the riv. reaches the ocean through some fifteen mouths, the most easterly branch being the main stream, whilst the most westerly is the sacred Hughli. The deltaic arms of the Niger are seven in number, the chief channel being the Nun, the most easterly Old Calabar; the tract enclosed, which is as large as Ireland, is covered with jungles, forests, and swamps. Ds. are termed lacustrine, fluvial, or oceanic, according as the channels which form them flow into lakes, rivers, or seas.

Delta Metal, alloy invented by G. A. Dick in 1833. It is really a variant of high tensile brass, consisting of copper and zinc, to which a small proportion of ferro-manganese has been added.

Deltoid, triangular, having the shape of the Gk. letter Δ (delta). The *deltoid muscle* is attached to the clavicle, acromion, and spine of scapula, and also to the shaft of the humerus; its function is to raise the upper arm.

De Luc, Jean André, see LUC.

Deluge, The (through O.F. from Lat. *diluvium*, flood; *dilucere*, to wash away). great flood or submersion of the earth by means of which almost the whole human race was destroyed. The name is more particularly applied to the Noachian D. described in the book of Genesis. Traditions of such a D. are to be found among many races of the world. Not only the Hebs. but also the Indians, Persians, Babylonians, Syrians, Amers., and Poly-nesi-ans record such an occurrence in their early literature. No trace of the story is found in Africa, even among the anc. Egyptians, but the classical story of Deucalion related by Ovid is well known. These traditions speak of the D. as covering the whole earth, and the natural interpretation of the biblical account would support this belief. This evidence was, until recently, considered conclusive both to Jews and Christians. Geologists, however, found that the constitution of the stratified rocks, and even of the surface deposits, rendered such a belief impossible, and the general view of the flood now is that it was partial and local, possibly owing its origin to a sudden and extraordinary rising in the Euphrates valley, occurring at the same time as a great rainfall. The Babylonian accounts are most interesting ones and show remarkable parallels with the biblical version. They agree with the latter in making the flood a punishment for sin, but the theology is

frankly polytheistic, the flood being sent by Bel against the entreaties of Ea. The Chaldean king, Xisuthros, takes the place of Noah, and when the flood is imminent Ea, the god of wisdom, warns him to prepare himself. He builds a ship 600 cubits long, 60 cubits broad, and 60 cubits high, and covers it with bitumen. Into this are brought all kinds of animals. Then for six days darkness and storm covered the earth, all creatures being destroyed but those in the ark. On the seventh day the ship grounded on Mt. Nizir, and Xisuthros opened the window. He sent forth a dove and a swallow, both of which return, and finally a raven which does not return. He then descends from the ship, and offers sacrifices to the gods. A fragment of a copy of a much older original than this, dating from the thirtieth century B.C. and discovered by Shiel, gives a slightly different account from this, so by that time sev. Babylonian accounts must have existed. As early as the eighteenth century it was pointed out that the narrative in Genesis was inconsistent in many particulars, and was compounded of two narratives. These are distinguishable by the fact that in the one Jehovah is the word used for God, while in the other Elohim is used. See also ZIEGLER. See II. Usener, *Smiltsagen*, 1899; G. Gerland, *Die Mythos von der Smiltut*, 1912; C. L. Woolley, *Excavations*, 1927; and H. Peake, *The Flood: New Light*, 1930.

Delusion, see HALLUCINATION; ILLUSION.

Delvin, Baron, see NUGENT, SIR

RICHARD.

Delvino, or Delbino, tn. of Albania, 18 m. N.W. by W. of Janina. The hills around are covered with orange groves and olive plantations. Pop. 6000.

Delyannis, Theodoros (1826-1905), Gk. statesman, b. at Kalavryta. In 1878, after the treaty of San Stefano, he ordered that Thessaly should be invaded. The Gk. Army only evacuated on the understanding that England would further the Gk. cause at the Congress of Berlin. He was president of the council in 1885 when Greece demanded from the powers the lands that had been promised to that country. He was Prime Minister from 1890 to 1892 and from 1895 to 1897, and was nominally responsible for the war of 1897. He was again Prime Minister from 1902 until he was assassinated in 1905.

Demand and Supply, see SUPPLY AND DEMAND.

Demantoid, emerald-green garnet, being a gem variety of Andradite, cut and worn as a precious stone in Russia. Found in granular masses in serpentine in the Urals, and sometimes known as Uralian emerald, though the true emerald also occurs in those mts.

Demaratus, king of Sparta from 510 to 491 B.C., when he was deposed by Cleomenes. He then went to Persia, where he was welcomed by Darius, and he afterwards accompanied Xerxes in his invasion of Greece.

Demavend, Mount, chief summit of the Elburz range of mts., situated in the prov. of Mazandaran, Persia. It reaches a

height of 18,500 ft., is conical in form, and volcanic. Large quantities of sulphur and pumice stone are obtained from its slopes.

Dembea, productive, well-cultivated dist. of Abyssinia, situated to the northward of Lake D. The cap. of the dist. is Gondar.

Dembinski, Henryk (1791-1864), Polish patriot and general who, from 1809 to 1813, went as a volunteer to fight in the wars against Russia and Germany, and he distinguished himself greatly at the battle of Leipzig. He became general in the Polish Army in the rising against Russia, 1830-31, and at the fall of Warsaw he fled to France. In 1849 he joined the Hungarians against the Austrians and Russians, and was made commander-in-chief of the Hungarian Army by Kossuth, but was defeated at Kapolna. See E. Danzer, *Dembinski in Ungarn*, 1872.

Deme, originally meant the dist. inhabited by a tribe which formed an independent community. These small communities gradually became joined together into larger ones, and the word came to signify a country dist., a township, or a par. These Ds. were especially important in the gov. of Attica as founded by Cleisthenes in 508 B.C.

Démembre, or **Dismembered**, see under **HERALDRY**.

Dementia, see **INSANITY**.

Demerara, riv. and co. of Brit. Guiana. The riv. enters the Atlantic at Georgetown (*q.v.*); its length is about 200 m. The co. lies mostly between the Rs. D. and Berbice, and fronts the sea for about 65 m. It was originally a Dutch settlement. The brown sugar known as D. was first produced here. See further under **BRITISH GUIANA**.

Demeter, in Gk. mythology, the daughter of Cronus and Rhea, and the sister of Zeus. She was the mother of Proserpine, who, whilst gathering flowers, is supposed to have been carried off by the god of the underworld, Pluto. D., on discovering the rape, leaves Olympus and goes down to the earth, where she dwells amongst mortals, and especially at Eleusis, to the inhab. of which place she brought great blessings. But in wrath for the rape, she visited the earth with a great dearth, and it was not until she was promised by Zeus that her daughter should visit her for two-thirds of the year that her anger was appeased, and the earth again gave forth plenty. In gratitude for the hospitality of the Eleusinians before she leaves the earth, she is supposed to have instructed them in mysteries by which she in future desires to be honoured. Deep meanings were read into the Eleusinian rites, and they were celebrated annually. Many meanings have been read into this story which readily lends itself to interpretation, either in teaching the principle for future life, or as an allegory which shows the ann. marriage of the mother earth (*ge-meter*). The story has many variations. The Romans, received from Sicily the worship of D., to whom they gave the name of Ceres. They celebrated in her honour the festival of the Cerialia. She was

looked upon by them much in the same light as Tellus (see **GÆA**). Pigs were sacrificed to both deities. Her worship acquired considerable political importance at Rome. The decrees of the senate were deposited in her temple for the inspection of the tribunes of the people. For the religious significance of the D. cult, consult Sykes and Allen, introduction to the 'Hymn to Demeter,' in their ed. of the *Homeric Hymns*, and the references there given. A very interesting account of the whole D. story is given in Pater's *Greek Studies*. There is a lovely seated statue of the D. of Cnidos in the Brit. Museum. See also J. Lawson, *Modern Greek Folk Lore and Ancient Greek Religion*, 1910, and A. Dietrich, *Mutter Erde*, 1925.

Demetrius Nicator, or **Demetrius II.**, king of Syria (146-126 B.C.), son of D. Soter (*q.v.*). He remained in exile for sev. years after his father's death, and then landed in Cilicia and defeated Balas, who had usurped the throne. He married Cleopatra, an Egyptian princess, and lived a life of cruelty and vice. In 138, during a war with the Parthians, he was taken prisoner and detained for ten years, the throne being filled in the meantime by his brother, Antiochus Sidetes. He regained his position as king in 128, but his subjects rebelled and he was murdered at Tyre.

Demetrius Phalereus (345-c. 283 B.C.), Grecian orator and philosopher, b. at Phalerum; studied under Theophrastus; was forced to flee into exile by Phocion. After Phocion's death Cassander made him governor of Athens in 316, and he administered the affairs of the city wisely for ten years. His works, which seem to have been highly esteemed, have all perished.

Demetrius Poliorcetes (the be-leger), or **Demetrius I.**, king of Macedonia (294-286 B.C.), b. about 335 B.C., the son of Antigonus, one of Alexander's generals. In 307 he accomplished the deliverance of Greece from Lyander and Ptolemy, and immediately after completely defeated Ptolemy in a naval battle off Cyprus. He made an alliance with Seleucus, and finally gained the mastery of Athens, whence he was recalled to become king of Macedonia at the assassination of the young king, Alexander. He was expelled from Macedonia by Lysimachus and Pyrrhus, who invaded the country, and fled to Cilicia, where he was forced to surrender to Seleucus. He d. in prison in the Syrian Chersonese about 383.

Demetrius Soter, or **Demetrius I.**, king of Syria (161-150 B.C.), b. about 185 B.C., son of Seleucus IV., or Philopator. As a boy he was sent to Rome as a hostage and detained there while his uncle, Antiochus Epiphanes, usurped the throne on the death of Seleucus in 175. He finally escaped, and was acknowledged king by the Syrians, and later by Rome. He was opposed by the Maccabees, and killed in a battle against Alexander Balas.

Demi-lion, **Demi-man**, or **Demi-rose**, see under **HERALDRY**.

Demi-monde (Fr. *demi*, half, and *monde*, world or society), word that came into use

from the name of a play by the younger Dumas in 1855. Applied to women who disregard all laws of propriety and morals, and therefore can only be half recognised by society.

Deming, co. seat of Lunaco, S.W. New Mexico, U.S.A., with a large sanatorium for tuberculosis. Pop. 4000.

Demir-Hissar, see *Siderokastron*.

Demise, Anglo-Fr. legal term (from the Fr. *démêtre*, to send away) for the transfer of a property, especially by lease. The phrase 'demise of the crown' is used in Eng. law, and means the immediate transfer of kingship and all its attributes to the next heir without any interregnum.

Demi-semiquaver, note in music equal to half a semiquaver, or the thirty-second part of a semibreve. It is written like a crotchet, but with three tails.

Demirgus, or **Demirgus**, name given in Gnostic thought to the God who was regarded as the creator of the material world, as distinct from the true, eternal, and unknowable God, who had no connection with matter. By the famous heretic, Marcion, the D. was identified with Jehovah, the God of the Jews.

Demmin, tn. of Germany, in the prov. of Pomerania, with 13,000 inhab. It has old tn. walls, and was one of the oldest Slav settlements in Pomerania, and was only conquered by Henry the Lion in 1164. It belonged to Sweden from 1648 to 1720. The R. Peene is navigable to this point, and there is trade by it.

Democracy. Term is of Gk. origin and means literally 'power of the people.' It is used to designate a form of state government. A democrat is a partisan of government by the people. The kernel of a democratic state-form is the constitutional right of the people to govern themselves. It further means a society based on equality. In a metaphorical sense the word D. is also employed to characterise the tendency of the progressive nations during the last two centuries toward the realisation of a social and political organisation based on popular control. Continental writers, especially the Fr., use the word in a social sense; Gk. philosophers used it in a government sense; and Eng. and Amer. political writers limit its use to the actual exercise of political power by the people. D.'s final aim is not confined to the estab. of a republican gov., and can accommodate itself within the limits of a monarchic state. A monarch reigns, but does not govern. In democratic republics all citizens have equal rights, and are as a body, at least theoretically, the formal rulers of the state. In practice the real power is exercised by certain privileged classes. Monarchies and republics are both exposed to the danger that a master man gets hold of the reins of state and rules as a despot, or dictator. The decadence of the aristocratic and moneyed classes leads to *oligarchy*. The degeneration of the masses leads to the worst of all powers, to *ochlocracy*—anglicised, the rule of the rabble. D. as a social principle rests upon the doctrine of the essential equality of all men—a notion derived from the

Christian conception of the equality of all men before God, which owes its transference from religion to society and politics mainly to the works of Jean Jacques Rousseau. It must not be forgotten also that the so-called Ds. of the ancients were anything but democratic in sentiment or in social structure. In modern times the revival of militarism in Europe during the latter half of the nineteenth century has delayed the progress of D. The marvellous industrial expansion and the grandiose economic development during the same period have aided D. very much, but they have also exposed it to the acute onslaught of plutocratic predominance. Modern political D. is derived from the social conception of the equality of all citizens, and is satisfied with nothing less than the substantial participation of the whole of the people in the management of the state. The rise in Europe after the First World War of the varying totalitarian systems of government, denoting the single-party (in Germany National Socialist, in Russia Communist, in Italy Fascist, in Spain Falangist) dictatorial type of government, as opposed to the Liberal conception of the state which assigns to the state only restricted powers while reserving the maximum powers to the free discussion and decision of the individual or the elected representatives of the individual, gradually eliminated all pretence of democratic principles in the government of those countries. For soon the sphere of state influence extended over the whole of private life as well as public, and demanded the full submission of the individual to the requirements of the state without even any pretence of freely elected representation. The Second World War was, in effect, the inevitable conflict between the opposed ideologies of D. and its negation, totalitarianism. See T. Paine, *Common Sense*, 1776; A. de Toqueville, *Democracy in America*, 1842; T. E. May, *Democracy in Europe*, 1877; Sir H. Maine, *Popular Government*, 1885; J. Bryce, *American Commonwealth*, 1888; W. E. Lecky, *Democracy and Liberty*, 1896; J. A. Hobson, *Democracy after the War*, 1917; Sir N. Angell, *The Public Mind*, 1926; J. A. R. Marriott, *Dictatorship and Democracy*, 1935; E. Giraud, *La Crise de la Démocratie*, 1938; B. E. Lippincott, *Democracy in Transition*, 1938; Cicely Hamilton, *Lament for Democracy*, 1939; R. Lennard, *Democracy*, 1941; E. Barker, *Reflections on Government*, 1942; H. J. Laski, *Reflections on the Revolution of our Time*, 1943; and A. D. Lindsay, *The Modern Democratic State*, 1943.

Democrats, name of one of the two great historic parties in the U.S.A., the Republicans (q.v.) being the other. Roughly speaking—but it is, of course, only a very rough generalisation—the D. may be compared to the Liberal party in Great Britain, and just as the latter party have shared alternately the government of the United Kingdom with the Conservative party, so in the U.S.A. the D. have, since the estab. of the republic, shared the spoils of office with the leading opposition

parties of the time. The policy of the D. has undergone many changes during the last century, but in the main D. have stood for state rights and human rights as against the growing tendency of the central or federal gov. to usurp power. This question of state right has always been to the fore in the U.S.A., and was one of the first questions to agitate the young republic. George Washington, the first president, with his lieutenant, Alexander Hamilton, secretary of the treasury, was the leader of the party called the Federalists, which stood for a strong national or centralised gov. Opposing him was Thomas Jefferson, the secretary of state, who stood for decentralisation (see CENTRALISATION), and whose party was known indifferently as the Republicans or Democratic Republicans, or the D. The title of Republicans disappeared towards the end of the first decade of the nineteenth century, and that of Democratic Republicans in the campaigns of 1828. The party elected Jefferson as president in 1801, and remained in control of the gov. till 1841. Since then they have been in power from 1845 to 1849, 1853 to 1861, 1885 to 1889, 1893 to 1897, and 1913 to 1921. Democratic presidents since Jefferson have been Madison Monroe, J. Q. Adams, Jackson, Van Buren, Tyler, Polk, Pierce, Buchanan, Cleveland, Thomas Woodrow Wilson, F. D. Roosevelt, and H. S. Truman. In pursuance of their general policy of supporting state rights, the D. in the main lent their aid to the S. states before the Civil war, 1861-65. The party opposing them took the old name of the D., viz. Republicans, in 1856. In later years, after the passions of the Civil war had cooled, the questions at issue between the D. and the Republicans were mainly the currency and the tariff. President Grover Cleveland crystallised the Democratic attitude by speaking of a tariff for revenue only, that is one to raise only such money as the gov. needed for its expenses, rather than the high protective tariff which the Republicans advocated to aid Amer. manufs. The currency issue became acute in the famous campaign of 1896, when Wm. Jennings Bryan was the Democratic nominee for president on the free silver platform. He advocated bimetalism (*q.v.*) instead of the gold standard. In three separate presidential campaigns, when he was the nominee, this was one of the great issues, and then it dropped out of the party platform. Even on the tariff the D. are not such extreme opponents as they used to be, admitting that a certain amount of protection is necessary for the country, but fighting the mt.-high tariffs the Republicans put into the Bill signed by President Hoover. One of the more recent presidential campaigns was fought by the D. mainly on the prohibition issue, the nominee, 'Al' Smith, being a 'wet.' It resulted in an overwhelming defeat for his party, four S. states voting Republican for the first time since the Civil war. After the Civil war the D. were pressed into the background, and they did not recover

until 1876. Democratic administrations were elected in 1884 and 1892 (Cleveland), 1912 and 1916 (Woodrow Wilson), 1932, 1936, 1940, 1944 (Roosevelt-Truman). The Democratic party, as implied above, is historically the low-tariff party, and is sometimes looked upon as the more liberal party in the U.S.A., but the difference between the two great Amer. parties is not simply a question of left and right, still less of Liberal and Conservative in the Brit. connotation of those terms, for there are Liberal and Conservative Republicans, as well as Liberal and Conservative D. The Democratic party has of old been strongest in the S. states—the solid S.—and these states are still Democratic. The main issue in the earlier terms of President Franklin Roosevelt was the New Deal. Later this was merged in the war effort; but on foreign policy there is no marked or obvious difference between the D. and the Republicans, though it may be that there is a stronger tendency to traditional Amer. isolationism in the latter. See F. R. Kent, *The Democratic Party*, 1928.

Democritus (b. c. 460 B.C.). Gk. philosopher, was a disciple of Leucippus (whose atomic theory he developed), and the most learned Gk. before Aristotle. Though his father had been so wealthy as to entertain Xerxes and his host on their expedition against Greece, D. managed to dissipate his fortune during his quest for knowledge in Europe, Africa, and Asia, and having reduced himself to poverty, only escaped the ignominy of having no funeral by reciting his *Diacosmos*, after which he was promised a public burial. Nothing practically remains of his many works on astronomy, mathematics, art, literature, and ethics—works which he composed in the solitude of a garden near Abdera, his native city. See T. Gomperz, *Greek Thinkers*, 1901.

Demography, see VITAL STATISTICS.

Demoiselle, or Numidian Crane, grui-form bird, *Anthropoides virgo*, closely allied to the cranes. It is indigenous to Asia, is a winter visitor to Africa, and often frequents S. Europe.

Demoivre, Abraham (1667-1754), Fr. mathematician and demographer, b. at Vitry and educated at Sedan, Saumur, and Paris. On the revocation of the Edict of Nantes he, being a Protestant, fled to England, and supported himself by giving lessons and by lecturing. He owed much to Newton's *Principia Mathematica*, and afterwards dedicated his *Doctrine of Chances* to that Eng. mathematician. He was chosen as judge in the famous contest between Newton and Leibnitz for the merit of the invention of fluxions. His pub. works include *Annuities upon Lives* (1725) and *Miscellaneous Analytica de Seriebus et Quadraturis* (1730). Referred to by Pope: 'Sure as Demoivre without rule or line.'

D.'s Hypothesis is an hypothesis on the duration of human life, formed by D., as he informs us in the preface of his *Treatise on Annuities*, some years after the pub. of the first ed. of his *Treatise on Chances*, on the inspection of Halley's

Breslau Tables. Observing that the decrements of life at the middle ages were very nearly uniform, D. made an extension of this law to the whole of life, not thereby intending to assert that any such principle was correct for childhood and old age, but simply that the effect of the error upon the value of annuities at the middle ages of life would be trivial. The hypothesis is as follows: *Of eighty-six persons born, one dies every year, till all are extinct.* The remainder of eighty-six years, at every age. D. called the complement of life. The half of the complement of life is the average duration (commonly called the expectation); and the peculiarity of D.'s Hypothesis is that, according to it, every person has an even chance of living the average time of people of his age, which is not true of other tables. The Northampton Tables certainly do nearly coincide with this law at the middle periods of life, but the Carlisle and most other tables differ materially from it.

Demonetisation, term used in connection with currency in two senses. The first and more general sense is used for the divesting of money of a standard value (see Bimetallism). The second significance of the word is the withdrawing of coin from circulation. This is done by proclamation stating that after a specified date a certain coin will not be legal tender.

Demonology, branch of religion which deals with evil spirits or demons. In every religion the presence of these spirits is recognised. In the lowest cults they receive almost exclusively the worship and sacrifice of men. The beneficent deities are considered as easy-going, and they may be trusted to continue in a course of helpfulness to man. Occasionally gratitude must be shown to them, or any cessation of their benefits must be renewed by some propitiation, but they may generally be ignored. The evil spirits, on the other hand, are not less active than powerful, and man must ever be on the watch to propitiate them. In this stage the witch-doctor, whose powers are handed on in a kind of guild, flourishes well. As religion improves in any community, the influence of the evil spirits is gradually limited. Their powers become less and they assume much less attention. Two chief classes of demons are recognised, though in primitive thought the distinction is not clearly drawn. The first class consists of departed human beings who are regarded as still influencing the race, and capable of doing it good or evil. The second class consists of spirits which never inhabited a body, and which are frequently derived from the powers of nature, and are conceived of as associated with the manifestation of that power. It will be seen, too, that the distinction between good and evil spirits depends more upon the sphere of their action than upon their nature. Fire and disease are evil when they attack the individual, but beneficent when invoked against his enemies. As the idea of God evolved, so did the idea of the evil forces opposed to Him. In primitive religion all is vague and confused. Then when definite polytheism is

reached, the evil spirits become limited in number, have definite spheres assigned to them, and receive names. This process, however, is not invariable, for among the Koreans, who numbered their demons by billions, an increase of culture seems to have brought about an increase of these spirits. Here, too, they are not considered as especially malignant. Finally we have monotheism, God being opposed by one single evil spirit. Perfect dualism is found in Zoroastrianism, where every good is opposed by its evil, and Ormuzd is opposed by Ahriman. Similarly in Christianity and O.T. Judaism, Jehovah is opposed by Satan, and the hosts of the good angels are opposed by the hosts of the fallen angels. Here, however, we find the evil definitely placed in subordination to the good, a fact which is most clearly exemplified in Job, where Satan appears as a servant of God, whose permission he must ask before tempting Job. The gospels distinctly recognise the belief that disease was sometimes the result of possession by demons, and the early church carried on Christ's method of expelling them. Exorcists long formed an active minor order, and the name still remains in the Rom. Catholic Church. The common opinion of the early church was that the gods of all heathen nations were evil spirits who had usurped the place of God, an idea which found its greatest expression in Milton's *Paradise Lost*. In the N. lands they were further discredited by being made ridiculous. The Satan of the miracle plays was a fool whom every one might outwit, the ancestor of the Elizabethan clown. The most elaborate system of D. is the Muslim, which is largely derived from that of the popular Judaism shown in the apocalyptic books. Belief in more or less malevolent spirits survived throughout the Middle Ages, and late examples of belief in witchcraft among the educated may be found in Burton and Sir Thomas Browne. Popular belief has not yet gone. The belief in vampires is chiefly found in Slavonic lands, but many references to the succubi and incubi, supposed to consort with women in their sleep, may be found everywhere. See Sir Walter Scott, *Demonology and Witchcraft*, 1830; Roskoff, *Geschichte des Teufels*, 1869; E. B. Tylor, *Primitive Culture*, 1871; M. Conway, *Demonology and Devil Lore*, 1879; P. Carus, *History of the Devil and the Idea of Evil*, etc., 1900; M. Summers, *The History of Witchcraft and Demonology*, 1926, and *The Vampire: his Kith and Kin*, 1928; and G. Hübener, *Beowulf and German Exorcism*, 1935.

Demonstration (Lat. *demonstrare*, show forth, point out), strictly, indubitable proof of a proposition, proof in which the conclusion follows of necessity from the premises. The great domain of D. is mathematics, in which all proofs are derived from simple axioms. It is often loosely used for any proof, even an imperfect one, or even for an explanation and exhibition of specimens and practical operations in science and art (anatomical, laboratory, cookery D.).

De Montherlant, Henry, see **MONTER-LANT**.

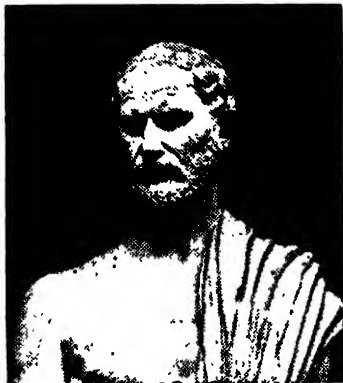
De Morgan, Augustus (1806-71), eminent Eng. mathematician, *b.* at Madura in India. He was prof. of mathematics in London Univ. from 1828 till his death, though he resigned his appointment for a period in consequence of the rejection of a candidate, James Martineau, for the chair of logic, on account of his religious opinions. De M. had strong ideas about the union of logic and mathematics, and in his series of papers entitled *A Budget of Paradoxes*, he discussed mathematical fallacies with much wit and the keenest logic. His ideas, however, encountered fierce opposition from the metaphysician, Sir Wm. Hamilton. In support of a decimal coinage he drew up a report which was recommended by a committee in the House of Commons. He wrote treatises on almost every dept. of mathematics, on arithmetic, algebra, trigonometry, differential and integral calculus, this last pronounced to be the most complete treatise on the subject ever produced in England. His other important works are *Elements of Algebra* (1835); *Essay on Probabilities* (1838); *Formal Logic* (1847); *Book of Almanacs* (1851); and *A Budget of Paradoxes* (1872). See life by S. E. de Morgan, 1857.

De Morgan, William Frend (1839-1917), novelist, *b.* in London, eldest son of Augustus de M., a distinguished mathematician and fourth Wrangler, Cambridge Univ., and grandson, on his mother's side, of Wm. Frend, reformer and scientific writer. Educated at Univ. College School and Univ. College, London. He began his art training in Cary's studio, and subsequently studied at the Royal Academy. He designed in stained glass, and experimented in lustre and pottery work, besides painting generally. Though not successful as a painter (the character of Charles Heath in *Alice for Short* may be regarded as a portrait of the author, whose early promise as a painter never materialised), he succeeded in perfecting his lustre process (a resuscitation of a fifteenth-century process by Gubbio), and furthermore elaborated a new process for painting in Persian colours beneath the lustre. His 'tile-pictures' were also a great success and decorated the cabins of many an ocean liner. Later he became a member of the celebrated Chelsea aesthetes (Burne-Jones, Ford Madox Brown, Dante Gabriel Rossetti, and Wm. Morris). After this his health broke down, and he sojourned for some time in Florence, being compelled on his return to alleviate his labours by taking a partner into his designing and tile-making business. This business was never a great commercial success, and closed about 1901. But though clever as a designer and lustre worker, it is as a novelist that de M. will go down to posterity. His appearance in the role of novel writer was startling, for it is rarely that a man when over sixty years of age can hope to write a successful first novel. Yet de M.'s *Joseph Vance* (1906), with its intimate and realistic touches, its quiet humour and lively

imagination, was hailed generally as a fine work. *Alice for Short* (1907)—his masterpiece—with its pregnant delineation of a child's feelings in slum life—stamped de M. as one of the best of modern novelists. His last novel was *When Ghost Meets Ghost* (1914). In style his novels are of the Dickensian or James order. The foundations are laid solidly, but the development is somewhat tedious, as was the manner of some Victorian writers. Though the life of the nineteenth-century London is vividly portrayed, there is no Zolaesque realism. De M. was too sensitive, perhaps too amateurish, an artist, too charitable in sentiment and genial in temperament to search after the uglier sides of truth and passion, or to try to express such truths in dramatic word-pictures. After 1914 he concentrated on experiments in aircraft and submarine defence, and with these he was busy until his death. Other novels: *Somehow Good* (1908); *It Never Can Happen Again* (1909); *An Affair of Dishonour* (1910); and *A Likely Story* (1911).

Demosthenes (c. 384-322 B.C.), the greatest Athenian orator and statesman, *b.* in the deme of Peania, in Attica, his father being a wealthy citizen. His father *d.* early, leaving much wealth to his children, but the trustees abused their trust entirely. D. prosecuted them on coming of age, and his success on this occasion led to his decision to embrace public life. He underwent a most strenuous course of training to overcome his natural defects. To strengthen his voice he declaimed to the sea in stormy weather, striving to make his voice heard. To overcome stammering he practised speaking with his mouth full of pebbles. To improve his delivery he studied under Satyrus, the actor, and before a mirror. His first appearance in politics was made in the year 354, when in his speech 'On the Navy Boards' (Symmories) he discouraged attack on Persia. To 352 belongs his speech 'For the Megalopolitans,' but his fame was not achieved till the next year, when in his First Philippic he made a strenuous attack on Philip of Macedon, urging his countrymen to cease their mutual jealousies and unite against this common menace. In 349 D. delivered his three Olynthiacs, in which he urged the Athenians to defend Olynthus against Philip. In 347, however, Philip gained this last Athenian outpost, and D. was one of the ambas. sent to negotiate peace with the Macedonian king. The probity of the orator himself was above suspicion, but bribery in other quarters was more successful, and the conqueror was allowed to possess himself of Thermopylae. Peace was concluded in 346, but Philip's intrigues went on continually, and D. gave himself to the work of denouncing them in no measured terms. To this period belong his Second and Third Philippics (344 and 341). On the same work of counteracting Macedonian influence he had gone as ambas. to the Peloponnese in 344. The famous speech 'On the Affairs of the Chersonese,' in the same year as the Third Philippic, forms

with the latter oration D.'s crowning effort. When Philip again began a course of active aggression in 340, it was D. who rallied all possible forces against him and supported Gk. hopes until the terrible disaster of Charonea. This ends the era of the political activity of D. Henceforth he devoted himself to municipal affairs. So highly was he held in honour that, in 336, Ctesiphon proposed that he should be presented by the state with a gold crown. To prevent this Bill passing the Assembly, Æschines gave notice that he should proceed against Ctesiphon for introducing an unconstitutional measure. He procrastinated until 330, when his speech 'Against Ctesiphon' evoked from D. the immortal oration 'On the Crown.' In 324



DEMOSTHENES

the orator was accused of appropriating twenty talents, and was imprisoned. He escaped, and was recalled in the next year to support the Athenian league against Antipater. On the failure of this, Antipater demanded his surrender, and he fled to the temple of Poseidon, where he took poison to avoid capture. The private life of D. was of the noblest, and his strenuous and unselfish exertions in the cause of his country entitle him to a high place among the great men of antiquity. All critics since his own day have held him as the greatest of all orators. For list of eds. see J. B. Mayor, *Guide to the Choice of Classical Books*, 1885 and 1886. See also A. Schäfer, *Demosthenes und seine Zeit*, 1856-58; S. H. Butcher, *Demosthenes*, 1879; W. Engelmann, *Scriptores Graeci*, 1881; F. Blass, *Demosthenes*, 1883; and A. W. Pickard-Cambridge, *Demosthenes*, 1914. The best Eng. version of D. is by C. R. Kennedy (Bohn's Library).

Demosthenes, son of Alcisthenes, an Athenian general, prominent in the Peloponnesian war. In 425 he garrisoned Pylos, a rocky promontory on the Lacedaemonian coast, and defended it against the Spartans till relieved by the Athenian fleet, when he forced the Spartan force on Sphacteria, a neighbouring is., to capitulate.

Shortly afterwards he gained Nicias, but failed to gain Megara. In 413 he and Eurymedon were sent to the relief of Nicias, who was in difficulties at Syracuse. He made a night attack on Epipolae, but was defeated, and counselled Nicias to retreat. This he postponed till too late, and the Athenians were totally defeated in two battles and Nicias and D. taken prisoners. Both committed suicide.

Demotic Writing. The term demotic, from Gk. *demotikos*, of the people (*demos*, people), vulgar, popular, and *enchorial* (from Gk. *enchorios*, of the country) denote that this Egyptian writing was used for the purposes of daily life. Indeed, while Herodotus (ii. 36) employs for it the term *demotika grammata*, vulgar characters, Clement of Alexandria (*Stromata*, v. 4), of about A.D. 200, who gave us the names hieroglyphic and hieratic, calls the D. W. *grammata epistolographika*, epistolary characters, that is the script used for writing letters.

D. was a development of hieratic, which was the cursive form of Egyptian hieroglyphic writing. Externally the D. signs became so cursive that their aspect had nothing in common with that of the original hieroglyphic characters. The difficulty in reading D. is increased by the fact that two or more hieratic signs were combined into a single D. character, thus creating a kind of monogram.

However, as a system of writing, D. was no more advanced than hieroglyphic, and essentially it consisted of ideograms and phonograms; the former representing concrete objects or abstract ideas without expressing their names, the latter representing spoken words or phonemes. On the other hand, in order to eliminate ambiguities and confusion in interpreting the texts, the number of homophones (i.e. signs having the same sounds, but representing different objects and, thus, being of different form) was so reduced that generally speaking the single phonemes could only be represented by one or two different characters. Unlike hieroglyphic and hieratic, which could be written in different directions, D. always was written horizontally, from right to left. D. originated in the eight and seventh centuries B.C., and gradually developed till it received its final form in the fourth century B.C. In the time of the Ptolemies, Alexander the Great's successors in Egypt, which they ruled until the occupation of Rome, D. was considered to be of greater importance than hieratic. Proclamations and documents of general importance were, then, set forth in hieroglyphic, D., and Gk. In the famous Rosetta Stone, D. occupies the middle portion of the stela.

The latest D. document which can be dated belongs to A.D. 476. It was the end of the Egyptian scripts, but the Egyptian language did not die out. It continued to be used as *Coptic*, for which a new alphabet was created. Out of its thirty-two letters twenty-five were borrowed from the Gk., and seven signs were taken over from the D. W. for Egyptian sounds which could not be expressed by Gk. characters. See W. Spiegelberg, *Demotic*.

tische Grammatik, 1925; E. Seidl, *Demotische Urkundenlehre nach den frühptolomäischen Texten*, 1937; S. It. K. Glanville, *Catalogue of Demotic Papyri in the British Museum*, 1939; and D. Dirlinger, *The Alphabet, a Key to the History of Mankind*, pp. 66-71, 1948.

Demotika, see DDMOTICHON.

Dempsey, Sir Miles Christopher (b. 1896), Eng. soldier, b. at Hoylake, Cheshire; educated at Shrewsbury School, from which he went to the R.M.C., Sandhurst, in 1914; commissioned in 1915, and saw service in France and Iraq during the First World War. He received his majority in 1932, and was promoted to the rank of lieutenant-colonel in 1938. He distinguished himself in the early part of the Second World War by the rearguard action which he conducted to defend the evacuation of the Brit. Army from Dunkirk. He later commanded the 13th Corps of the Eighth Army in N. Africa, and was also one of the Brit. commanders in the invasion of Europe in 1944. In the subsequent campaign in France and Germany he led the Second Army with the rank of lieutenant-general, and entered Germany with his troops in Jan. 1945. Awarded D.S.O., 1940; M.C., K.C.B., 1944 and K.B.E., 1945. Commander-in-chief allied land forces, S.E. Asia, 1945-46; commander-in-chief Middle E., 1946-47.

Dempsey, William Harrison (Jack) (b. 1896), boxer, b. at Manassa, Colorado, of Scottish, Irish, and Amer. extraction. Originally a hard-rock miner, D. fought his first professional fight in Colorado in 1914. By defeating Willard in 1919 he became world's heavyweight champion, and in 1921 he enhanced his reputation by knocking out Carpentier at Jersey City. In 1922 he toured Europe, and in 1923 a terrific contest with Firpo ended in Firpo's defeat. D. defeated every boxer of note until in 1926 he lost his title to Tunney, and a year later made a gallant effort to regain it, but was defeated on points after ten rounds.

Demurrage, allowance made to a ship-owner by the freighter for the detention of the ship in port beyond the specified time of sailing. A certain number of days, called lay days or lie days, are allowed for receiving and discharging cargo, and it is usually stipulated that the freighter may detain the vessel, after the expiration of these days, on payment of so much *per diem* for overtime. The D. ceases as soon as the vessel is cleared ready for sailing, though she may be prevented from doing so by adverse winds, etc.

Demurrer. In the language of pleadings in an action at law, D. signifies an issue upon a matter of law as opposed to fact, i.e. it confesses the facts as stated by the opposite party to be true, but avers that those facts disclose no cause of action or ground of defence. A D. is now known technically as an objection in point of law. In criminal law D. is an objection by the accused that the facts, even if true, do not in law constitute the crime with which he is charged. Such a D. seldom occurs in practice.

Demy (i.e. half-fellow), name given to the holder of a scholarship at Magdalen College, Oxford.

Demy, particular size of paper. In printing paper each sheet measures 22 in. by 17½ in.; in drawing paper 22 in. by 17 in.; and in writing paper 20 in. by 15½ in.

Denain, tn. of Nord, France, 14 m. E. of Douai. Has coal-mines and ironworks. An obelisk marks the scene of Marshal Villars's victory over the Allies under Prince Eugène, July 27, 1712. Pop. 24,900, which originated with an abbey in the eighth century.

Denarius: 1. Rom. silver coin, first minted 269 B.C., equal at first to 10 asses, whence its name, but afterwards considered equal to 18 asses, when the weight of the as was reduced in consequence of the scarcity of silver. The value of the D. under the republic was rather more than 8½d., and at a later period about 7½d. The gold 1. was worth about 25 silver denarii. 2. Also a weight. The Rom. pound (libra) contained 96 denarii, the ounce 8, and the D. 3 scruples.

Denbigh, Rudolph Robert Basil Aloysius Augustine Feilding, ninth Earl of (1859-1939), lord-in-waiting to Queen Victoria and to King Edward VII. from 1897 to 1906. He joined the Royal Artillery in 1878, fought in the Egyptian campaign of 1882. He will be chiefly remembered for his activity in the introduction and development in Britain of the sugar-beet industry. His efforts both by propaganda and in Parliament resulted in the erection of the first sugar-beet factory, at Cantley, Norfolk, in 1912.

Denbigh, or Denbighshire, co. of N. Wales, on the Irish Sea, and between the Dee and the Conway. Area 664 sq. m. It contains the fertile valleys of Llangollen and the Clwyd. The whole surface is rugged and mountainous. The rocks are chiefly Silurian clay and graywacke slates, with some granite and trap, and bands of Devonian, Carboniferous, and Permian strata. Coal, lead (yielding some silver), iron, limestone, grndst me, and flagstone abound. It yields excellent dairy produce, and is well timbered. Chief tns.: Denbigh, Ruthin, Wrexham, Llanrwst, Abergele, Holt, and Ruabon. Rvs.: Dee, Conway, Elwy, Clwyd. Tumuli and other pre-Rom. remains still exist. Pop. 158,000.

Denbigh, co. tn. of Denbighshire, 30 m. W. of Chester, but the assizes are held at Ruthin. Stands on a steep limestone hill, which is crowned by an anct. castle on the site of a fortress erected by William the Conqueror. The gatehouse is one of the finest in England, from whence can be had a magnificent view of the vale and hills. The newer part was built at the bottom of the hill, after the destruction of a great part of the old tn., about 1550. In 1645 Charles I. took refuge in the castle after the battle of Rowton Heath. Pop. 2,000.

Dender, riv. of Belgium. Its source is in the prov. of Hainault, and its course is N. and N.E., through Hainault and E. Flanders. It joins the Scheldt at Dendermonde, after passing Ath, Grammont,

Ninove, and Alost, and is navigable from its junction with the Scheldt to Ath.

Dendera (Gk. *Tentyra*, or *Tentyris*; Coptic *Tentore*, probably from Tel-n-Athor, the abode of Athor), vil. in Upper Egypt, once a populous tn., situated near the l. b. of the Nile, in 26° 13' N. lat., 32° 40' E. long. It is celebrated for its temple, which dates from the period of Cleopatra. The temple is 220 ft. long and about 50 ft. broad, has a noble portico supported on twenty-four columns. The walls are covered with hieroglyphics, and on the ceiling of the portico is a zodiac in which the crab is represented by a scarab. There are other sacred buildings, including a temple of Isis.

Dendermonde, or **Termonde**, tn. of E. Flanders, Belgium, has suffered much from war. In 1667 the inhab. repulsed Louis XIV. by opening the sluices and inundating the whole dist. He said that only an army of ducks could take it, but Marlborough did take it in 1706. On Sept. 4, 1914, the Gers. entered it and damaged or destroyed 1200 out of 1400 houses, after looting them all. The Belgians reoccupied it on Sept. 10, and it was bombarded and retaken by the Gers. on Sept. 16. The Gothic fifteenth-century church of Notre Dame was much damaged by the bombardment, and the tn. hall of the fourteenth to sixteenth centuries was burned. The imposing Palais de Justice adjoins it. Pop. 9300.

Dendrites, or **Dentritic Markings**, geological term. Stains usually black or brown, and branching like fern fronds. They are generally found in the joints and at the div. planes of rocks. They are caused by infiltration of iron and manganese solutions into cracks from whence they have afterwards evaporated. Like markings are also seen in agate or chalcedony, forming a species of moss-agate.

Dendromys (Gk. *δένδρον*, tree, *mys*, mouse), a genus of rodents, belongs to the family Muridae, which comprises mice, rats, voles, and other well-known creatures. It consists of about half-a-dozen species dwelling in Ethiopia. *D. typpus* (or *mesomelas*) is about 8 in. long, over half its length belonging to its strong, slender, prehensile tail. In colour it is reddish-brown above, whitish beneath, and its habitat is the branch of a tree, where it constructs a nest and rears its young.

Dendrophis, genus of tree-snakes of the sub-family Colubrine, all of which are non-venomous and harmless. The keeled scales along the back are wider than those along the flanks, and the snakes glide up trees in almost a straight line. The genus has representatives in Australia and Africa.

Dene Holes, excavations found in Kent and Essex, England, about whose origin and purpose there is some conjecture. The theory has been advanced that they are flint quarries worked by Neolithic Man, dating back to the third millennium B.C. Against this theory, for surface flints could be found, it is noted that they are in a pattern of threes, associated with tumuli and earthworks in the same

pattern. The chambers are in trefoll or double trefoll, the ceiling having a rectangular even shape, and a planned construction is therefore suggested. The possibility of their having been used as granaries is discounted by some, as grain could hardly be successfully stored because of the humidity.

D'Enghien, Louis Antoine, Henri de Bourbon Condé, Duc, see ENGHEN.

Dengue, or **Breakbone Fever**, or **Dandy Fever**, epidemic infectious disease, peculiar to tropical countries. In many ways it resembles rheumatic fever and influenza. The typical case begins with pains in the back, limbs, and joints, a rising temp. following rigors. Before the temp. falls an itching rash appears; the temp. generally falls about the fifth day. There is, however, an intermittent type in which the temp. sinks on the third and fourth days, and rises on the fifth before its final lysis. Extreme weakness follows, and heart failure has to be guarded against by the use of stimulants and nourishment, and also much rest; but it is rarely fatal. It is thought that D., like malaria, is carried by mosquitoes.

Den Haag, see HAGUE, THE.

Denham, Sir John (1615-69), Eug. poet belonging to the Caroline group. b. at Dublin. He was educated in Dublin and at Trinity College, Oxford, where he gained the reputation of being 'a slow, dreaming, young man, and more addicted to gambling than study.' In 1634 he married and went to live at Bgham, Surrey. At the outbreak of the Civil war he was high sheriff of Surrey, but he had no military ability, and surrendered Farnham Castle, of which he was governor, to the Parliament. After a short imprisonment he joined the king at Oxford, and engaged in many secret services for him. Soon after the Restoration D. lost his reason, according to common report, on account of the duke of York's attentions to his wife. D. was a better poet than soldier or diplomat, and his poem *Cooper's Hill* (1642), describing the scenery of the Thames valley at Bgham, was the model of Pope's *Windsor Forest*. Among his other works were *The Sophy* (1642), a tragedy in five acts; *The Anatomy of Play* (1651), a prose tract against gambling; *The Destruction of Troy* (1656), a paraphrase of the second book of *Æneid*; and *Directions to a Painter* (1667), a bitter satire on the shameful conduct of the Dutch war—although D.'s authorship of this is uncertain; and a beautiful elegy on Abraham Cowley (1667).

Den Helder, see HELDER.

Denla, city and seaport in the prov. of Alicante in Spain, on the Mediterranean, and 45 m. from Alicante. Founded by the Phœnicians and once called Hemeroscopion, it was the place where Sertorius fled to after his revolt in Rome, 81 B.C. This tn. is the centre of the export raisin trade, but it also exports grapes, oranges, almonds, onions, and ground nuts. In Moorish times the pop. was 50,000, but now the inhab. number 13,000.

Denier, formerly the unit of silver

coinage in France, worth $\frac{1}{2}$ of the *livre d'argent*. Cf. the Lat. *denarius* (first issued c. 269 B.C., worth 10 asses). From the sixteenth century a copper coin of insignificant value, worth $\frac{1}{2}$ of a sou.

Denifle, Friedrich Heinrich Seuse (1844-1905), Austrian priest and historian, b. at Imst, Tyrol, son of Johann D., schoolmaster and organist. Studied at Brixen. Joined Dominicans, 1861. Received holy orders, 1866; visited Rome; became prof. of theology in Dominican monastery, Graz, and famous as preacher. Archivist to Vatican, 1883; prepared new ed. of St. Thomas Aquinas. With P. Ehrle ed. *Archiv für Literatur und Kirchengeschichte des Mittelalters* (1885-1900). His *Luther und Luthertum in der ersten Entwicklung* (1904-9) (completed by Weis) aroused much controversy. See lives by M. Grabmann, 1905, and A. Troger, 1908.

Denikin, Anton (1872-1947). Russian general of humble origin; entered the army 1887, became a divisional commander in S. Army in the early part of the First World War. At the Russian Revolution he joined Kornilov (q.v.) and was later imprisoned with him. Both escaped and gained the shores of the Black Sea in the Caucasus. Here they joined Gen. Alexeyev's volunteer army. Kornilov d. in March 1918, and D. commanded the force which opposed the Bolsheviks in S. Russia. On Alexeyev's death D. became leader of the anti-Bolshevik forces in S. Russia. D., though a good soldier, was not equal to the occasion as a politician, and he vainly tried to set up a military dictatorship. By the summer of 1919 his forces became demoralised, and when the Bolsheviks attacked them in Nov. 1919 they broke up completely. After the collapse of his army D. fled to Istanbul. He was offered asylum in England, but preferred to go to Brussels. Later he lived in France and finally went to America, where he d. His conduct of the campaign which ended in the 'White' retreat from Orel in 1919 has been criticized on grounds of strategy. That he failed was due in part to his own lack of the 'indefinable qualities which make a leader of men, in greater part to the extraordinary conditions of the civil war. He pub. sev. vols. on the history of the Russian Revolution and Civil war. Two of these, *The Russian Turmoil* (1922) and *The White Army* (1924), appeared in Eng.

Deniliquin, municipal tn. of New S. Wales, Australia, situated on the Edwards R., in the co. of Townsend, about 490 m. S.W. of Sydney. Pop. 3000.

Denis, Denys, or Dionysius, patron saint of France. He was the first bishop of Paris, and is supposed to have been put to death about the third century. He was in Paris towards the end of that century, and was ordered to appear before the Rom. governor, and on refusing to give up Christianity was condemned to death. The abbey of St. Denis is built over his burial-place. His festival is Oct. 9. See also ST. DENIS.

Denis, Louise Mignet (1712-90), niece of Voltaire and his constant companion.

She went with him to Berlin, to Geneva, and to Ferney. Voltaire addressed to her many of his letters.

Denis, St., see ST. DENIS.

Denison, George Taylor (1839-1925), Canadian soldier and author, b. in Toronto. Grandson of Lt.-Col. George Taylor D. (1783-1853), who raised the volunteer corps known as Denison's Horse. Called to the Bar, 1861; became a lieutenant-colonel in the active militia, 1866. Served against the Fenian raid of 1866 and the rebellion of 1885. In 1877 he was appointed police magistrate of Toronto. His prin. work, *A History of Cavalry* (1877), is a standard book and has been trans. into Russian, Ger., and Jap. He also wrote *The Fenian Raid at Fort Erie* (1866); *Modern Cavalry* (1868); *Soldiering in Canada* (1900); *The Struggle for Imperial Unity* (1909); and *Recollections of a Police Magistrate* (1920).

Denison, city of Grayson co., Texas, U.S.A., 3 m. S. of Red R., with railway repair shops, mills, oil refineries, and wagon works. Pop. 15,500.

Denizen (through Fr. from Lat. *de intus*, from within), one who obtains through letters patent certain of the privileges of a Brit. subject. When abroad he enjoys the same advantages as a Brit. subject.

Denizli, or Denizli, tn. of Asiatic Turkey, about 50 m. S. of Alashehr, and connected with Izmir (Smyrna) by rail. It is the trading centre of an important agric. region, manufacturing textiles; exports barley, opium, cotton, and nuts. The ruins of Laodicea are near by. Pop. 17,000. (tl of D. 315,400).

Denka, or Dinka, large tribe of Negro people living on both sides of the Nile in the Sudan. The chief source of their wealth is their cattle.

Denman, Thomas, first Baron Denman (1779-1851), lawyer, was called to the Bar in 1806, and entered Parliament twelve years later. He had arrived at such a high position as an advocate in 1820 that Queen Caroline made him her solicitor-general. In that capacity, with Brougham, who was the queen's attorney-general, he took an active part in her defence before the House of Lords, and it was these men who compelled the gov. to withdraw the Bill of Pains and Penalties. D. became attorney-general in 1830, and was lord chief justice from 1832 until 1850, when ill health compelled him to resign. He was an able though not a brilliant judge. See life by Sir J. Arnold, 1873.

Denman College, Abingdon, Berkshire, England, college of the National Federation of Women's Institutes. Training is given in many subjects, including citizenship, domestic crafts, gardening, and literature. It was founded in 1948 with funds raised by women's institutes throughout the country, with assistance from the Carnegie United Kingdom Trust.

Denmark, kingdom of N. Europe, and the smallest of the N. states, lying between 54° 34'—57° 45' N. lat., and 8° 6'—15° 12' E. long., consisting of a part of the European mainland (the peninsula of Jutland) and the is. Sjælland (or Zealand),

Fünen, Lolland (or Laaland), Falster, Møn, Langeland, the is. of Bornholm in the Baltic and sev. smaller is. The outlying possessions of D. comprise Farøe Is. and Greenland. In 1944 Iceland (*q.v.*) severed all ties with the Dan. Crown. Jutland is separated from Norway by the Skager Rack, and from Sweden by the Kattegat. The is. of Fünen and Zealand make three channels—the Little Belt, the Great Belt, and the Sound, which is the quickest route to the Baltic. The surface of Jutland presents an almost continuous plain, only a few feet above sea level, but the flatness of the landscape is relieved by the gentle slopes of wooded hills. The highest point is Ejler Bavnehøj, which reaches a height of about 560 ft. Jutland is thus a part of the great European plain. The W. coast of Jutland is low and sandy, with long spits of sand fringing shallow lagoons. The W. coast is thus without adequate harbours, and its shoals and sandbanks are a peril to mariners. The Lim Fjord, which is quite unlike the fjords of Norway in character, cuts Jutland in two. The prin. fjords and inlets of D. are the Ise Fjord, Roskilde-Fjord, and Ringkøbing-Fjord. As no inland point in Jutland is more than 50 m. distant from the sea there are no rivs. of importance. The Gudenaa, the longest, is only 85 m. long. There are many small lakes and well-constructed canals, which compensate for the dearth of riv. transport. The climate of D. is rendered temperate owing to the proximity of the sea on all sides, and resembles that of the E. of Scotland. The cold in the is. in winter is less severe than in Jutland. There are no deposits of coal or minerals of much value in D. The W. portions of Jutland consist of barren moorland to some extent, but the E. div. is very fertile and rich in pasture.

More than 75 per cent of D. is under cultivation, and there are now 204,000 farms. One-fourth of the pop. live exclusively by agriculture, and about one-half by manufs. and trade. The chief plant products are wheat, rye, oats, barley, grass, roots, and potatoes. Cattle, sheep, horses, pigs, and poultry are reared. In normal years bacon, butter, cheese, and eggs are produced in great quantities, with a large surplus for export. Beet-sugar and margarine are also manufactured. The fishing industry is increasing in importance and value, and the number of vessels in use is 15,000. Woollen, cotton, and linen goods are manufactured, but mainly for home supply. Paper-making, iron-smelting, and porcelain manufs. are thriving industries. D. has a unique situation with regard to commerce. It is the key to the Baltic, and is in a good line of communication with all the chief ports of Europe. The Danes have from very anct. times been a great sea-faring people, and in temperament are well suited for commercial life. The chief exports are agric. produce, including bacon (190,000 metric tons before the Second World War), butter (150,000 metric tons before the war), eggs (1,400,000,000 before the war), hides, skins, horses, and cattle; and from Greenland and the Farøe Is. dried fish,

elderdown, feathers, and oil. In normal years two-thirds of the exports go to England, and the value of the total exports from 1933 to 1938 averaged £60,000,000. The chief imports are iron, coal, and other minerals, including oils, timber, woollens, silks and cottons, hardware, fruit, tea, coffee, cereals, feeding stuffs and fertilisers, oil seeds, and colonial produce. The value of the goods sold by Britain to D. was over £12,000,000. The chief Brit. exports to D. are coal, coke, and manufactured fuel, iron and steel, cotton-piece goods, and woollen and worsted yarns and manufs.

The estab. church is the Evangelical Lutheran Church, introduced in 1536, at which date the church revenue was taken over by the Crown. Great tolerance is given to all religious sects, and no political inconvenience is experienced by the heterodox. Education was made compulsory in 1814, and is free. A notable feature for adult education is the system of Folk High Schools (*q.v.*), instituted in 1844 at Røedding. The univ. of Copenhagen was founded in 1479, and since 1875 admits both men and women students, now numbering nearly 6000. The univ. of Aarhus, founded in 1933, has 1000 students; the technical high school of D. at Copenhagen has 1700 students.

Copenhagen (København), on the is. of Zealand, is the prin. tn. and cap. of D. Pop., including suburbs 1,100,000. It has many fine public buildings. Elsinore, with its strong fortress of Kronborg, commands the Sound. Odense (92,400) is the chief tn. on the is. of Fünen. Aalborg (60,800) on the Lim Fjord is an important mkt. tn. and canal front. Other tns. are Aarhus (107,300), Horsens (32,400), Randers (36,400), Esbjerg (43,200), Fredericia (22,900), Kolding (27,600), and Vejle (27,100). The area of D., including the is. in the Baltic, is 16,576 sq. m., and the pop. is 4,045,200. The Farøe Is., area 540 sq. m., have a pop. of 29,200. A wide measure of autonomy was granted in 1947 to the people of the Farøe Is.

The throne is hereditary, and the power of the monarch is limited by the constitution. There is a Diet (Rigsdag) of two chambers: the Senate (Landsting) of 76 members, elected for eight years, and the Folketing of 149 members, elected for four years. A new constitution, involving the abolition of the Landsting, and the lowering of the franchise age from twenty-five to twenty-three, was rejected in 1939 by a narrow margin.

The navy (fleet and coast-defence forces) includes two destroyers, two frigates, ten torpedo boats, three submarines, ten motor torpedo boats, mine-sweepers, mine-layers, and surveying vessels. The army is organised in two divs. and sev. special regiments. In 1948 a home guard was estab. D. has also a small air force.

D. possesses about 5000 km. of railways, half of which are operated by the state, and half by companies in which the state or municipalities have an economic interest. Compared with other countries the railway net in D. is very highly developed,

and this holds whether measured by the area of the country or by the number of inhab. The motorisation of the country has made considerable headway, and in proportion to the number of inhab. D. has, next to France and Great Britain, more motor vehicles than any other European country. D. occupies an excellent position in the centre of the great N. European countries, and is striving to become one of the centres of the air-borne traffic of the future. The Dan. aviation company is one of the oldest in existence in the world, and is rapidly increasing its flying equipment. Before the Second World War the Copenhagen aerodrome was used by many foreign aviation companies, and these connections have now been re-established, notably with London, Paris, and New York. This airport now has four cement runways, the longest of which is 1200 metres. The Dan. merchant marine has 600 vessels—steamships, steam tankers, motor-ships, and motor-tankers, and 1400 smaller craft.

The monetary unit, the *kroner* of 100 *ore*, is of the value of 1s. 1½d. or about 19·35 kroner to the pound sterling.

History.—The story of D. during the first nine Christian centuries is steeped in the mists of saga and legend. The Danes claimed origin from Dan, and tradition points to Zealand as being the original home of these peoples, and certainly always a religious sanctuary. Pliny gives us our earliest reference to this country, and further references are made in Tacitus. It was from D. and the surrounding neighbourhood that the A.S. pirates swooped down on the coasts of Britain and finally made their settlements. In the stories of Beowulf we are able to trace some signs of the Dan. royal house and the extent of the Dan. dominions, but the facts which we gather are themselves obscured by the mists of tradition. We read of a Dan. king Harald fighting against the Swedes and dying in battle about the middle of the eighth century, whilst gradually these references to the Danes increase in the annals of the nations of Europe. We find, as they begin to become known as Vikings and sea-rovers, that the Frankish chronicles of the time of Charlemagne make mention of them; whilst during the ninth century the stories of their raids and the deaths of their kings are mentioned as events in the hist. of Scotland and of Saxony.

The hist. of D., however, became more authentic towards the beginning of the ninth century. Attempts are made from the great Ger. sees to convert the Danes, their kings begin to be recognised by the other kings of Europe. From about the year 800 almost to the end of the fifteenth century the name of Dane was feared throughout Europe. To the Litany was added the new phrase 'From the fury of the Dane, Good Lord, deliver us.' The Northmen was a term applied generally to the sea-rovers who were not all Danes, but who at the commencement of the raids certainly were. The raids of the Vikings had undoubtedly the one great result of making the monarchies of Europe feudal.

From the reign of Charles the Great to the settlement of Rollo the Dane in France, Europe was disturbed everywhere by the raids of these pirates of the N. During the ninth century many efforts were made to convert the Dane, but it was not until well after the middle of the tenth century that we may regard D. as having been in any sense fully converted. During the tenth century D. tried to extend her territory, parts of Germany were seized, especially the mouths of the rivers. During the reign of Canute the Great the whole Scandinavian peninsula for a time became one, but the attempt to dominate England, started by Sweyn and continued by Canute the Great, failed (1042).

The hist. of D. during the eleventh and twelfth centuries is troubled and complicated. Between the death of Canute the Great and the accession of Valdemar the country was harassed by internal troubles, and by continual disputed successions. With the accession of Valdemar I. D. began to become a really strong and consolidated kingdom. The country was the most fertile and the nearest to W. civilisation of the countries of Scandinavia. This gave it advantages which it was not slow to use. The church also, once it became a national church, did much to help in the consolidation, and D. gradually became the leading nation of the Scandinavian peninsula. Under Valdemar I., Canute VI., and Valdemar II., the nobles fell thoroughly under the influence of feudalism, the people were rich, and D. appeared to have a period of great prosperity before it. In 1241 Valdemar II. d., and throughout the thirteenth and fourteenth centuries civil war and constitutional struggles continued. The nobles gradually became more powerful than the king. The monarch was shorn of many of his prerogatives. The nobles gained charters, but used their power simply for the increase of their own wealth. On the death of Christopher II. (1332) D. was torn by internal struggles, and was on the point of total disintegration. On the death of Christopher II., Valdemar IV. came to the throne. He re-established the royal power, and crushed the nobility. He had to rebuild the whole strength of the nation, and by careful attention to details he did so. Further, he was by no means despotic: of his own free will he recognised many of the privileges which the nobles and people had obtained during the anarchy, and in 1360 was issued King Valdemar's charter. Under his daughter Margaret D., Norway, and Sweden were united by the union of Kalmar (1397). This union benefited only D., and was highly unpopular in the other two countries. Further, it threatened the power of the Hanseatic league, with the result that D. found herself involved in a long war with Holstein—the work of the league. Under Christian I. (of Oldenburg) both the Danish Slesvig and the Ger. Holstein were incorporated in D. (1460), and the king had to promise that the two dukedoms should remain united for ever. The monarch lost steadily in power to the lords of the manors, who became the

aristocracy of the fifteenth century, and the peasants were reduced to mere serfs.

During the fifteenth century the union of the three kingdoms was broken up. Norway remained with D.—she was by far the poorest of the three kingdoms and had been practically depopulated by the Black Death. Sweden still for a time was nominally ruled by the Dan. kings, and D. was still the leading power of the three kingdoms, but during the early sixteenth century the union received a fatal blow in a massacre by Christian II. at Stockholm (1520). From that time the Swedes were the irreconcilable foes of the union. Christian II., however, attempted to establish a strong and well-governed kingdom. This reign coincided with the Reformation in Europe, and finally he was driven into exile, and his uncle, Frederik I., became king. Sweden also at this time was separated for ever by the election of Gustavus Vasa to the throne of Sweden. The reign of Frederik I. was a period of transition, but during the reign of his son, Christian III., the Reformation doctrines were definitely estab. in D. The townspeople and the peasants attempted a rising in 1534-36 against the nobility, but they were denounced by the Assembly of Lords, who also dealt a final blow at the Itom. Catholic Church in D., the lands of the bishops being handed over to the king and the lords. A new church ordinance was drawn up and approved by Luther, and in 1537 the Dan. Church became entirely Protestant. The revenues of the Church were employed for the good of the nation, the fleet was strengthened, and the power of D. increased. During the sixteenth century D. was one of the great powers of Europe, and we may well regard the reigns of Frederik II. and Christian IV. as the period of D.'s greatest power.

The accession of Christian IV. marks a period which may be aptly termed transitional. The power of the king, although nominally very great, was in reality limited by the liberties and privileges of the nobility, and by the increasing liberal tendencies of the burgesses. D. was, above all else, a great Scandinavian power, and she still possessed Norway. This led her into continual disputes with Sweden and also with the maritime nations, Holland and England, who coveted the North Sea fisheries. D. exploited her controlling position at the entrance and exit of the Baltic by levying a duty on the cargo of all ships passing through the sound. Before the end of the reign D. had begun to lose to Sweden some of her ters., and from that time her possessions continually grew smaller. The next king, Frederik III., although still further shorn of his royal powers, was nevertheless imbued with an idea of winning back the lost ters. In this he was steadfastly supported by his people, and finally, when Charles X. seemed to be surrounded by insuperable difficulties in Poland, D. rushed to war. They were beaten and crushed by the Swedes, the last campaigns of this war forming one of the most dramatic episodes of the hist. of

war, and D. was forced to sign a disastrous peace at Roskilde in 1658. This was followed by a second war with Sweden, and this time the terms of the treaty were rather easier for D., much that she had given up was restored, but her Swedish provs. were lost, and the dominion of the N. passed out of her hands for ever. The war had the further result of removing the privileges from the nobles, and finally after much intrigue and a threatened *coup d'état*, Frederik III. succeeded in forcing the Council of the Realm to recognise him as an hereditary monarch. Thanks to the burghers he was soon able to establish himself as an absolute monarch. From 1660 to 1848 Dan. kings ruled according to 'the king's law' without a Parliament or an Estates Assembly. The change was on the whole beneficial to D. and of vast importance to Norway, which became prosperous and more energetic. During the reign of Christian V., and under the wise diplomacy of the Chancellor Griffenfeldt, D. seemed likely to become again a great European power. The ambitions of France and the alliance of that country with Sweden gave D. her opportunity. The chancellor played his hand with skill, and it was not until Sweden openly attacked Prussia that D. came definitely into the field as the opponent of the Fr. and Swedes. The fall of Griffenfeldt in 1676, however, paved the way for the humiliation of D., and the peace made in 1679 did not benefit D. at all, although on her had fallen the brunt of battle.

During the early part of the eighteenth century she played an important part in the N. war, in which Sweden, Hanover, and Prussia were involved, only to find at the end of it that Prussia and Hanover benefited by her territorial conquests, while she had to remain satisfied with financial compensation and the incorporation of the ducal part of Sleavig under the Dan. Crown. For a time the country remained at peace, and a beginning was made to attempt to end serfdom in D. During the eighteenth century it was mainly questions of land tenure and agriculture that troubled the Dan. statesmen. Attempts had been made to bring about relief by abolishing such services as militia service, but the price of corn still continued to fall and the peasantry still continued to emigrate. For a time reactionary measures were tried, and these for a short time had the desired effect. Efforts were made to restore the trading prosperity of the nation, and these not without success. Treaty after treaty was signed which gave D. great trading privileges, but still the agric. affairs at home did not improve. Under the Bernstorffs affairs improved, and before the end of the century D. had declared the importation of corn to be free and had practically emancipated her peasantry. The foreign policy of the century may be summed up in the word neutrality, and by studiously remaining firm to this policy she was enabled to steer clear of all the wars which Europe waged during this period. But it was also a close adherence to this policy and to the

domination of Russia that resulted in two breaches with England.

In 1800 the armed neutrality of the N. threatened the power of England. Prussia, Sweden, and Russia leagued themselves together, and the latter power practically forced the acquiescence of D. Napoleon closed the continental ports and the Brit. Navy replied by blockade of W. Europe. When D. organised a convoy system to protect her shipping, Britain found it necessary to detach D., and so Parker and Nelson sailed for Copenhagen, where the Dan. fleet was destroyed and the fortifications dismantled. The second breach was caused by Napoleon's desire to close the harbours of the N. to Brit. trade. D. desired to remain neutral and resolved to attack even France if she could not remain neutral; but an Eng. fleet was dispatched to take possession of the Dan. fleet, and at the same time to offer her very generous terms. D. was prepared to be courted, but not to be coerced. The result was England took by force what she could not obtain by diplomacy, and D. became an ally of Napoleon and remained staunch to the end of the war. In 1814, by the treaty of Kiel, she lost Norway to Sweden, and in the following year, as duke of Holstein, the Dan. king joined the Ger. confederation, but refused to allow Slesvig to become a member of it, since it formed part of the Dan. kingdom. The position of D. during the period immediately following the Napoleonic wars was one of great poverty and distress. Essentially an agric. country, the falling price of corn impoverished her, and the loss of Norway, although to a certain extent a relief, was by no means as great a relief as it seemed. One great reform was introduced during this period: the educational reform of 1814, which provided for the compulsory education of every child from the seventh to the fourteenth year. This reform was the forerunner for many liberal measures which led up to the granting of the democratic constitution in 1849. Absolute monarchy had ended. In March 1848 the Ger. Holstein leaders demanded a free joint constitution for Slesvig and Holstein, while the Dan. National Liberals advocated a free constitution for D. and Slesvig and the separation of Holstein from Slesvig. The ensuing war between D. and Holstein had great international ramifications, and finally the protocol of London was drawn up by the great non-Ger. powers in 1850, guaranteeing the indivisibility of the Dan. monarchy. D. had to promise not to attach herself closer to Slesvig than to Holstein. However, in 1863 D. promised Holstein a new constitution of her own, while Slesvig was to have a *joint constitution with D.* Bismarck struck and D. lost both Holstein and Slesvig. The loss of Slesvig entailed a revised constitution promulgated in 1866. For nineteen years D. was governed by Estrup despite parl. opposition. In 1894 he was forced to retire, and the Conservative and Democratic parties struggled for supremacy. In 1901 the Farmers' party formed their first adminis-

tration. In 1906 King Christian IX. d. and was succeeded by his son, Frederik VIII. Frederik continued his father's policy of upholding Parliament, but the event in political affairs in D., which has called for most comment, however, was the resignation of the minister Alberti in 1908, after he had held office for over seven years. He was sentenced to penal servitude for embezzlement. In 1912 Frederik VIII. d. suddenly, and his son, Christian X., became king. In 1915 Christian signed a revised constitution (*see under CONSTITUTION*), as the Upper House was at last forced to pass a Reform Bill putting its powers on a more democratic basis. During the First World War D. succeeded in maintaining her neutrality, and by the treaty of Versailles it was decided to settle the Slesvig question by plebiscite. In 1920 N. Slesvig voted for D. by 75,431 votes to 25,329, and was incorporated with D. under the name S. Jutland Provs. D. entered the League of Nations in 1920. Thereafter D. was occupied with economic stabilisation. The independence of farmers was guaranteed by a law increasing the size of small holdings but prohibiting amalgamation. Prosperity had come from the land, and by 1927 the stabilisation of the currency was complete. Repeated but unsuccessful attempts were made in Parliament to effect disarmament.

In 1924 the first Social Democratic Gov. came into power with the assistance of the Radicals, who had governed the country during the First World War. After a Liberal interval in 1926-29 the Social Democrats ruled until the Second World War. D.'s position at the opening of the war was difficult. She early co-ordinated her policy of neutrality with that of the other Scandinavian states. Pledges were given by both Germany and Britain to respect that neutrality. A non-aggression pact with Germany was ratified in June 1939. How worthless was this pact was shown when Germany suddenly on April 9 in the following year overran D. In their official announcement of the invasion, the Ger. Gov. stated that the invading forces would not interfere in the internal affairs of the country. But in the result Germany showed no more compunction in denuding D. of her stocks than she showed in the case of Czechoslovakia or Poland. D. made short resistance to the invaders. Coming thereafter under Ger. control she felt the full rigour of the Brit. blockade, for her dairy and industry had always depended on imported feeding stuffs and fertilisers.

History during the German Occupation, 1940-45.—Despite the non-aggression pact which Hitler had signed with D. on May 31, 1939, Ger. troops marched across the Dan. frontier on April 9, 1940. Heavy concentrations of Ger. forces on the Slesvig border had warned the Danes of the menace to their country, but they were powerless. After a short but fierce resistance the Social-Democratic Premier Stauning gave in under strong protest. King Christian appealed to the country to show a dignified and correct demeanour

to the Gers. People felt bound by loyalty to his request. The king's sense of reality and deep sentiment of responsibility offered a guarantee which no political leader in D. was able to counterbalance. A core of resistance hardened under the lead of J. Christinas Møller, Conservative leader and minister of commerce, but the Gers. soon ousted him through the helpless Dan. Gov. Gradually effective power passed from Stauning to the collaborationist, Scavenius, the foreign minister, from whose policy Stauning consistently held himself strictly aloof. Scavenius despised the Nazis, especially



Royal Danish Embassy

THE BRIDGE ACROSS THE LITTLE BELT,
CONNECTING JUTLAND AND FUNEN

the Dan. Nazis, but he was at heart a Prussian Junker and, like Stauning, he was convinced that Germany would win the war, and so he regarded as Europe's central power. In a memorandum dated April 9, 1940, to the Dan. Gov. on the aims and purposes of their invasion the Ger. Reich gave all manner of specious promises, one of which was that they would respect the integrity and independence of D. The country was, however, economically flooded; leading politicians were forced out of office in the search for quislings; writers were arrested; and a censorship estab. The Gers. also openly discussed the role which was assigned to D. under the New Order (*g.v.*), and which gave to D. merely the functions of a vassal state. The whole country was in a ferment, and the Prime Minister had constantly to repeat the king's appeal for order and tranquillity, and, by way of warning, the heavy sentences imposed for insults to Gers., sabotage, and demonstrations were given wide publicity.

Scavenius openly asserted that the Dan. Gov. 'recognised an economic and political new order under German leadership,' and he proclaimed D.'s willingness to seek her place in 'a necessary and reciprocal co-operation with Germany'—declarations which presumably it was hoped would ensure that other Ger. promises made at the time of invasion might be kept. Among them were two of great significance: Germany had no desire to create for herself in D. bases for the struggle against England; the Dan. Army and fleet were to be maintained. But in Jutland aerodromes sprang into existence one after another, a very big one being constructed at Aalborg. Dan. farmers of N. Jutland had to drive miles out of their way when travelling towards that tn., all traffic on the main roads having been diverted. Hero sham vils. and churches were set up, farmyards on wheels, wireless transmitters concealed in pine woods. A large seaplane base was built near Thisted. D.'s eight torpedo boats, her only naval assets, were taken by the Gers. The Dan. Army was reduced to the size and functions of a mere police force. A Ger. attempt to force D. into a customs and currency union with Germany failed, notwithstanding the support of Scavenius, owing to the firmness of the king and the rest of the gov. Dan. agriculture and industry were pressed into the service of the Gers. Fortunately the most valuable part of the Dan. mercantile marine was out of the Gers.' reach on April 9, 1940, and joined the allied cause. Big public works were designed in conformity with Ger. directions as a link in the chain of plans for a Ger.-dominated Europe. These included unnecessarily large harbour extensions and road-making schemes. Meanwhile, however, a Dan. council had been set up in London as a rallying centre for Danes abroad who wished to fight in the allied cause.

From the end of August 1943 the Danes were openly at war with Germany. By noon Aug. 29, following the rising, some Dan. warships reached the Swedish ports of Malmö and Landskrona, while other ships, unable to make good their escape, were scuttled by their crews. Earlier the Scavenius Gov., with the endorsement of King Christian, had rejected a Ger. ultimatum imposing all manner of restrictions on Dan. life and liberty. The Danes had always been convinced of Germany's ultimate defeat and chafed under the stigma of the great betrayal of 1940, which tricked them into apparent acquiescence in the Ger. occupation. Under the inspiring leadership of the Dan. Freedom Council, which maintained the closest liaison with supreme headquarters allied expeditionary force, and resistance movement intensified sabotage against Ger. lines of communication and estab. The clandestine press flourished, most underground papers drawing their news from the B.B.C. transmissions in Dan. and from the illegal news agency 'Information.' Meanwhile a secret army was being built up, armed with weapons

dropped by Brit. aircraft, to join with the Dan. brigade which was being trained in Sweden for the liberation of D. The Gers. struck at the Jews, of whom most reached Sweden safely, thanks to excellent illegal ferry arrangements, and later at the police.

On May 5, 1945, the Ger. armies in D., N.W. Germany, and Holland surrendered to P.-M. Montgomery, who during a visit to Copenhagen later in the month declared that the Dan. resistance movement had been 'second to none.'

Post-war Period.—On the eve of the liberation a Coalition Gov. had been formed by representatives of the traditional political parties and the resistance movement under the leadership of Vilhelm Buhl, with J. Christmas Møller as minister for foreign affairs. In Oct. 1945 a new Rigsdag was elected, the Liberals (farmers) forming the gov. After a new general election in 1947 the Social Democrats took over the administration as a minority gov. In 1945 D. entered United Nations. In 1949 she signed the N. Atlantic Pact and joined the Council of Europe.

Danish Language and Literature.—Before the year A.D. 1000 the language spoken in D. was more or less identical with the language spoken in Norway and Sweden. The first Dan. texts known are runic inscriptions from about A.D. 400 and there are many runic stones from the Viking period and the early Middle Ages. The special Dan. characteristics from this period are the substitution of single long vowels for diphthongs, and the loss of initial *h* before *i*. Not until about 1300 is there a real literature in Dan. The most important sources are some prov. laws, medical books, and later also prayer books, travel books, legends, a collection of proverbs, and a rhymed chronicle (the first Dan. printed book, pub. 1495). In this period initial *h* disappears before *n*, *l*, and *r*, and original diphthongs have become monophthongs; original mutation has often been lost, and three distinct dialects have developed—of Scania, of Zealand, and of Jutland. Altogether, before 1500 a considerable simplification has taken place: the original masculine and feminine genders of the nouns have developed into a common gender, and the conjugation of the verbs have been greatly simplified. The most important sound change after 1500 is the change after a vowel of *p*, *t*, *k* into *b*, *d*, *g*.

The introduction of Christianity brought many Lat. and Gk. loan words into the Dan. language, and in the later Middle Ages the influence of the Hanseatic traders and the Ger. nobility brought many Low Ger. loan words into Dan. The importation later on continued with many Fr. and Eng. words.

An important element in modern Dan. is the 'glottal stop,' which developed from an original accent. Until 1948 Dan. followed the Ger. habit of writing all nouns with capital letters, but this has been abandoned by an Act of the Dan. Rigsdag in 1948. At the same time the letter *z* was officially accepted instead of

aa. The standard dictionary is *Ordbog over det danske Sprog* a work in progress, of which 24 vols. have been pub., 1918-49. For the hist. of the language, see P. Skutntrup, *Det danske Sprogs Historie* (in 3 vols.) (1943-49). Most of the Dan. literature of the Middle Ages is in Lat. Of particular prominence is the twelfth-century historian Saxo Grammaticus, whose work *Gesta Danorum*, in sixteen parts, contained the saga of D. from mythical times to 1216. Anct. Dan. heroic legends (e.g. the legend of Amleth) form the most important part of the entire work. Of eminent importance are also the Dan. ballads of which a total of nearly 550 exist in about 3000 varying eds. The most important of them were created between 1200 and 1500. They were the property of the chivalry and sung as an accompaniment to dances, but they were not written down till after the end of the Middle Ages. They are more epic in character than the Fr. and Ger. ballads, and there is a distinct resemblance between Dan. and Scottish ballads. The first printed ballad ed. appeared in 1591 (by A. S. Vedel). The modern scholarly ed. (by Grundtvig, Olrik, and Gruner Nielsen) is in 5 vols (1853-1919). Dating from the Middle Ages is also a collection of proverbs (by Peder Laale), law-books, edifying books, and some few dramas. The period of the Dan. Reformation (1520-70) is first marked by a great many polemic pamphlets, with Poul Helgesen (b. 1480) as the outstanding defender of the Catholic Faith, and Hans Tavsén, Christen Pedersen, and Hans Mikkelson as the prominent representatives of Lutheran doctrines. Peder Palladius, the first Lutheran bishop of Zealand, wrote a *Visitation Book*, characteristic of its frank and lively style, and Christen Pedersen made a trans. of the Bible, pub. in 1550 as *Christian III's Bible*—from the text of which the written modern Dan. language is derived. Among the hymn-writers of this period special mention should be made of Hans Thomison and Hans Christensen Sthen. The Reformation was followed by a period of Lutheran orthodoxy with Niels Hemmingsen (1513-1600) as its great theological exponent. The first Dan. hist. to succeed Særo's work was written by Arild Huitfeldt, whose work *Danmarks Riges Historie* was pub. in 10 vols. in 1595-1605. There were many scientific and scholarly works from the sixteenth and seventeenth centuries by Anders Sørensen Vedel (1542-1616), Erik Pontoppidan, Peder Syv (and 1707), Tycho Brahe (1546-1601), Ole Rømer, Thomas Bartholin, Niels Steensen, Ole Borch, and Simon Paulli. A new artificial poetry imitating the classics was written by Anders Arreboe (1587-1637), whose chief work, *Herememus* (1661), describes the Creation in hexameters and alexandrines. Søren Therkelsen imitated Fr. pastoral poetry, and Anders Bording (1619-77) was a versatile poet of the baroque period; he was also the editor of D.'s first newspaper, *Den danske Mercurius* (1666-77), where the news appeared in rhymed alexandrines. The greatest poet of the

seventeenth century was Thomas King (1634-1703), whose hymns are still much in use. In the beginning of the eighteenth century Ludvig Holberg (later Baron Holberg) (1684-1754) is the greatest name. He was b. in Norway, but settled down in D. where he became a prof. in the univ. of Copenhagen. His first work as a satirical writer was the mock-heroic poem *Peder Paars* (1718-20), but his main importance for Dan. literature rests in his thirty-three comedies of which the first fifteen—the moralizing comedies of character—came 1722-23, while most of the other comedies appeared 1723-27. Holberg is D.'s sole playwright of European importance, and with his comedies he created the modern Dan. drama. Holberg also wrote sev. histories, thus a *Danmarks Riges Historie* (1732-35), which superseded Huitfeldt's. Finally Holberg was also a writer of philosophical essays, *Moralske Tanker* (1744), and *Epistler* (1748-54), and the author of an imitation of Swift's *Gulliver's Travels*; *Niels Kibns underjordiske Rejse* (1741). He wrote his own memoirs (1728-43).

H. A. Brorson (1691-1764) was a writer of Pietistic hymns, Ambrosius Stub (1705-1753) an inspired and versatile poet, whose poems range from religious hymns to drinking songs. Johan Herman Vessell (1742-85), was a talented satirist and humorist, whose mock-heroic drama, *Kærlighed uden Strømper* (1772), ridiculed the bad imitations of Fr. classicism. Towards the end of the eighteenth century there were various Brit. influences upon Dan. literature. The writings of Young and Thomson and Pope are traceable in sev. Dan. poets, notably in Tullin. The Eng. 'Spectator literature' had great effects on Dan. periodical literature, and Shakespeare, Milton, Sterne, Ossian, and Fielding had their effects on Johannes Ewald (1743-81). His odes, his tragedies with subjects from Nordic legends and mythology, and his patriotic heroic play *Fiskerne* (1778) deserve special mention. The latter contained his poem 'Kong Christian,' which has become the Dan. royal anthem. Ewald wrote an impressionistic sketch of his own life, *Levnets og Meninger*, pub. after his death (1804-8). P. A. Heiberg (1758-1841) was a violent radical inspired by the ideas of the Fr. Revolution. For his anti-monarchistic writings he was made an exile and lived the latter half of his life as a refugee in France. Another radical writer was Malthe Conrad Bruun who became later a well-known geographer. Jens Baggesen (1764-1826) distinguished himself as an emotional lyrical poet, a humorist, and a fine prose-writer. His autobiographical sketch *Labyrinten* (1792-93) has a high place in the hist. of Dan. prose.

The romantic revival in D. came via Germany and began with the works of Adam Oehlenschläger (1779-1850). His lyrics, his tragedies (often with motives from old Dan. legends), and his re-writing in verse of old Norse mythology, in *Nordens Guder*, had an enormous influence on Dan. literature and thought in the nineteenth century. To the romantic

school belonged also Schack v. Staffeldt (1769-1826) and B. S. Ingemann (1789-1862), whose historical romances are Dan. equivalents to Scott's Waverley novels. Ingemann was also a pure and exquisite lyrical poet of many 'Morning and Evening Songs'. N. F. S. Grundtvig (1783-1872) also belonged to the romantic school. He was a very prolific writer, D.'s greatest hymnlist, her most renowned educationalist, a liberal politician, and a diligent historian and antiquarian; his influence has been very considerable both in and outside D. Carsten Hauch (1790-1872) was a sober and genuine poet, novelist, and dramatic writer. A new realistic interest made itself felt in the writings of Poul Møller (1794-1838) and St. Blicher (1782-1848). Poul Møller's greatest contribution to Dan. literature is his novel *En dansk Students Eventyr* (1824). Blicher was inspired by the Ossian poetry of Macpherson; outstanding among his lyrics is *Trækflugten* (1838). His many short stories have a realistic background in Jutlandish life and conditions. Johan Ludvig Heiberg (1791-1860) introduced Hegelian philosophy into D., and was for a time the dominating literary critic of Copenhagen. He re-created the Fr. *vaudevilles* on Dan. soil, but he also wrote more serious dramas, e.g. the national drama *Elverhøj* and the philosophical drama *En Siel efter Døden* (1841). His mother, Fru Gyldenbourg, was well known for her stories with everyday subjects, and his wife Johanne Louise Heiberg was a famous actress in the Royal Theatre of Copenhagen. To the same aesthetic school belonged also Henrik Hertz (1798-1870), an author of epic and lyric poetry and of bourgeois plays and serious romantic dramas. Prominent among a new school of lyrical poets about the middle of the century were Christian Winther (1796-1876), Ludvig Bødtcher (1793-1874), and Emil Aarestrup (1800-1856). Especially Winther and Aarestrup are known for their fine love lyrics. Frederik Paludan-Müller (1809-76) was originally influenced by Byron, but he gradually became the great moralist in Dan. literature. His main work is the verse novel *Adam Homo* (1841-48). Hans Christian Anderson (1805-75) even in his own lifetime acquired international fame through his *Fairy Tales*. He was also the author of sev. novels, plays, and poems, and his own fate—the poor shoemaker's son who became a world-famous genius—is reflected in most of his writings. It is the subject of his memoirs, *The True Story of My Life* (1855). Another contemporary writer of European fame is Søren Kierkegaard (1813-55), a religious philosopher whose books are on the borderline of philosophy and belles-lettres. Among his philosophical works, *Either-Or* (1843), is the main work. M. A. Goldschmidt (1810-87) was a gifted novelist of Jewish origin, who described conditions among the Jewish community in Copenhagen. His chief novels are *En Jøde* (1845), and *Karmen* (1867). Less important are the poets Carl Ploug (1813-94), J. C. Hostrup

(1812-92), Christian Richardt (1831-92), and H. V. Kaalund (1818-85). H. E. Schack wrote one novel of great importance *Phantasterne* (1857).

About 1870 a new radical, 'naturalistic' movement began in D., led by the eminent critic Georg Brandes (1842-1927). His chief work *Main Currents in Contemporary European Literature* (1871-90) were met with both enthusiasm and antagonism, but his many critical works had an enormous influence on Scandinavian literature. J. P. Jacobsen (1847-85) was the first exponent of naturalist fiction in D. through his two novels *Fru Marie Grubbe* (1876), and *Niels Lyhne* (1880), and his short stories. Holger Drachmann (1846-1908) was mainly a lyrical poet, generally considered D.'s finest poet in the nineteenth century. Henrik Pontoppidan (1857-1943) was a sober and distinguished novelist, whose novel *Lykke-Per* (1898-1904) is one of the landmarks of the Dan. novel. Other novelists from the 1880's are Karl Gjellerup (1857-1919) and Herman Bang (1857-1912). In the nineties a generation of lyrical poets were the dominating names: Johannes Jørgensen (b. 1866), Viggo Stuckenberg (1863-1906), Sophus Clausen (1865-1931), Ludvig Holstein (1864-1943), and Helge Rode (1871-1937). Jakob Knudsen (1858-1917) was a novelist inspired by the ideas of Grundtvig and the Dan. Folk High Schools, and Gustav Wied (1858-1914) was a cynical satirist as a writer of novels and plays.

A new 'peasant movement' was inaugurated in Dan. literature by the Jutlandish lyrical poets Thøger Larsen (1875-1928), Johan Skjoldborg (1861-1936), and Jeppe Aakjær (1866-1930), and by the Jutlandish novelist Johannes V. Jensen (b. 1873), whose main work, *The Long Journey*, is based on the Darwinistic theories of evolution. Jensen is also a fine lyrical poet and essayist. Martin Andersen Nexø (b. 1869) has won international fame with his proletarian novels, *Pelle the Conqueror* (1906-10), and *Daughter of Man* (1917-21). His *Memoirs* (1932-39) rank very high. Other noteworthy novelists are Harald Klode (1878-1918), Knud Hjortø (1869-1932), and Marie Bregendahl (1867-1940).

Of the authors between and after the two wars, special mention should be made of the novelists Jacob Paludan (b. 1896), Johannes Buchholtz (1882-1940), Harry Selberg (b. 1880), Hans Kirk (b. 1898), Knuth Becker (b. 1893), Thit Jensen (b. 1876), Mogens Klitgaard (1906-45), Harald Hørdal (b. 1900), Marcus Lausson (b. 1907), H. C. Branner (b. 1903), and Martin A. Hansen (b. 1909). Of the lyrical poets the most important names are Hans Hartvig Seedorff Pedersen (b. 1892), Kai Hoffman (b. 1874), Tom Kristensen (b. 1893), Otto Geilsted (b. 1888), Nis Petersen (1897-1943), Paul la Cour (b. 1902), Tove Ditlevsen (b. 1913), and Morten Nielsen (1922-44). The prominent playwrights from this period are Kaj Munk (1898-1944), Kjeld Abell (b. 1901), Soya (b. 1896), and Knud Sønderby (b. 1909).

Art.—Dan. art portrays national culture stretching over ten millenniums, from the time when birds and animals were carved in amber with a high degree of artistic competence, to the pottery of Copenhagen of to-day, with its wonderfully perfect glazes and correct shapes. In the years 2000-1500 B.C. the Danes had not yet learned from the rest of Europe the secret of bronze, yet they carved copies of bronze axes in stone with a craftsmanship equal to the best anc. ritual jade carvings of the sinic world. When they learned how bronze was made they developed an exquisite art in bronze (1500-800 B.C.), inventing the signal-horn or *lur*, stated to be one of the oldest musical instruments in the world: some of these lurs can still be played. The early bronze period of D. coincided with the Cretan, and the later period with the heyday of classical Greece: this independent flowering of a culture is sufficient refutation of the theory that lands beyond the influence of Mediterranean culture were barbarous until the eleventh century A.D., when the Christian church reached D. Dan. art continued to find its expression in architecture and decoration, in the building of the cathedrals at Lund, Ribe, and Viborg (1140). Early Gothic is found in the brick-built cathedral of Roskilde (after 1200). Gothic style was introduced in the cathedral of Aarhus Haderslev, as well as the Cisterian monasteries of Løgum and Sorø. Many guildhalls, e.g. in Copenhagen and Aarhus, as well as farmhouses of the late Middle Ages, are still well preserved, and show the influence of lower Saxon styles. There are numerous castles and smaller country mansions dating from the sixteenth to the eighteenth century. Notable among those in Dutch Renaissance style are Kronborg (1571-85), Frederiksborg (1602-22), Rosenborg (1613-16), and the Bourse at Copenhagen, on which four fairy-tale dragons twist their tails into a delicate spire. Like England and Holland D. resisted the baroque of S. Germany, and in the cap. the palace of Christiansborg was rebuilt (1771-40) in early Fr. classic style, but the modern building, by the architect Thorvald Jørgensen, dates only from the present century. D.'s most noted sculptor is Bertel Thorvaldsen (1768-1844), who obtained world fame. Among architects who have achieved renown outside their own land are C. F. Harstorf (1735-99), C. F. Hansen (1756-1845), P. V. Jensen-Klint (1853-1930), and T. F. Willumsen (b. 1863), also painter and sculptor. In modern Dan. architecture schools, libraries, stadiums, factories, univ. buildings, and hospitals show solid worth, tempered with elegance; notable in this work are Kay Fisher and C. F. Möller.

The first Dan. painters representing neo-classicism in the eighteenth century were N. A. Abildgaard (1743-1809) and Jens Juel (1745-1802). C. W. Eckersberg (1783-1853) was a pupil of David in Paris. Among his contemporaries in the 'Golden Age' were Christen Købke (1810-48), P. C. Skovgaard (1817-75),

J. T. Lundbye (1818-48), and Dankvart Dreyer (1816-52). To the same period belonged also the fine illustrator Wilhelm Marstrand (1810-73). The greatest Dan. painters towards the end of the nineteenth century were P. S. Krøyer (1851-1909), L. A. Ring (1854-1933), Theodor Philipsen (1840-1920), Vilhelm Hammershøf (1864-1916); among the twentieth-century Dan. painters special mention should be made of Poul S. Christiansen (1855-1933), Fritz Syberg (1862-1939), J. F. Willumsen (b. 1863), Harald Giersing (1881-1927), the two brothers Joakim Skovgaard (1856-1933), and Niels Skovgaard (1858-1939), Niels Larsen Stevns (1861-1941), Edvard Wele (1879-1943), Olaf Rude (b. 1886), Oluf Høst (b. 1884), Johannes Larsen (b. 1867), Jens Søndergaard (b. 1895), Vilhelm Lundstrøm (b. 1893), and Knud Agger (b. 1895). Particularly noteworthy among modern Dan. sculptors are Kai Nielsen (1882-1924), Gerhard Henning (b. 1880), Adam Fischer (b. 1888), Astrid Noack (b. 1889), Mogens Bøggild (b. 1901), and Knud Nellemose (b. 1908).

Fine craftsmanship in furniture, interior decoration, ornaments, porcelain, and jewellery, remains a notable feature of Dan. art: the silversmith, Georg Jensen (1866-1935), achieved fame as an artist, and created the silverware which bears his name.

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Dennis, Alfred Lewis Pinneo (1874-1930), Amer. historian, b. in Beloit. He was prof. of hist. at Bowdoin College, 1901-4; associate prof. of hist. at the univ. of Chicago, 1904-5; and prof. of hist. at the univ. of Wisconsin from 1906 to 1920. Among his books are *Eastern Problems at the Close of the Eighteenth Century* (1900); *Anglo-Japanese Alliance* (1923); and *Foreign Policies of Soviet Russia* (1924).

His Adventures in American Diplomacy, pub. in 1928, covers the decade 1896-1906—one of the most perilous periods of Amer. diplomacy. The value of the work lies in the use made of hitherto largely unpublished state documents and private papers of Roosevelt, Olney, Hay, Root, and other statesmen.

Dennis, John (1657-1731), Eng. critic, son of a saddler of London, where he was b. He was educated at Harrow and at Cambridge Univ. He lived the improvident life of a literary adventurer, and was a political writer, a poet, a dramatist, and a critic. It is as the last that he is principally known, not from his own works, but from having been preserved in the amber of Pope's *Essay on Criticism* and *The Dunciad*. A well-instructed if small contemporary critical public recognised in D. the first and most philosophical expositor of the sublimity of Milton's verse. Wordsworth, Bowles, Coleridge, and other romantics found him an inspiring writer. But it was not until the twentieth century that justice was done to him as a critic, in Prof. D. Nichol Smith's *Eighteenth-century Essays on Shakespeare* (1903). In regard to dramatic criticism it is possible that, had his views been respected, the course of Eng. comedy might have been stronger and saner; but public opinion preferred such plays as Steele's flimsy *Conscious Lovers*. D., unfortunately for himself, was throughout his life a butt for nimbler wits and spirits more sociable and pleasant than his own, and early he was condemned by Pope and Swift as 'a Whig dog' and left unread. Nor was he any match for the malice and cleverness of Pope, who did not appreciate D.'s criticisms of his work. But at least if a surly and sour critic D. was a passionate lover of spiritual and intellectual beauty. This is evident in his best known work, *Essay on the Genius and Writings of Shakespeare* (1712), and also in his *Reflections Critical and Satirical on Pope's Essay upon Criticism* (1711), *Remarks upon 'Cato'* (1713), and *A True Character of Mr. Pope and His Writings* (1716). His own original plays were dull and are interesting only because they illustrate his sound dramatic theories, among which was no slavish adherence to the unities. His adaptations of *The Merry Wives of Windsor* (*The Comical Gallant*, 1702) and of *Coriolanus* (*The Invader of His Country*, 1720) have been criticised for vandalism, but a juster estimate of their critical beliefs and aims now prevails. Much is owed to the first collected and complete ed. of D.'s critical writings, *The Critical Works of John Dennis*, ed. by E. N. Hooker (2 vols.), 1939, 1943. See H. G. Paul, *John Dennis, His Life and Criticism*, 1911.

Denny, Jn. of Scotland in the co. of Stirling, situated on the Carron. Iron and coal are obtained in the neighbourhood, and there are large foundries and iron-works, chemical works, and paper mills. In the vicinity are the ruins of Torwood Castle, and also of Herberthshire Castle, which was destroyed by fire in 1914, the Lady's Lead, and Carron Glen. The

banks of the Carron were the scene of many of the most stirring and heroic deeds recorded in Scottish hist. Pop. 9000.

Denominations, The Three, was composed of the three D. of dissenters—Presbyterians, Baptists, and Independents—living in or near London. They had the privilege of presenting an address to the sovereign at certain times, and in 1727 'the General Body of Protestant Dissenting Ministers of the Three Denominations' was organised.

Denotation, see CONNOTATION AND DENOTATION.

Density. Absolute D., term used in physics to express the quantity or mass of matter contained in any unit of volume. Relative D., or sp. gr., is the comparison of the mass of the substance concerned with the mass of the same volume of some standard matter, which for liquids or solids is generally taken as water at its temp. of maximum D. (4° C., 39° F.) and at ordinary pressure; for gases the standard is hydrogen at ordinary temp. and pressure. Since in the metric system, which is usually employed, the unit of mass is the weight of a c.c. of water at 4° C., the relative D. is the same as the absolute D. Since, however, weight is proportional to mass, the weight may be substituted for the mass without causing any material difference. The least dense substance known is lithium (0.53) if the D. of water be called unity; the densest is iridium (22.4); the D. of hydrogen is 0.0009. See SPECIFIC GRAVITY.

Dent Blanche, see BLANCHE.

Dent, John Charles (1811-87), Canadian journalist and writer on historical subjects. B. at Kendal, Westmorland, and was taken to Ontario in infancy. He was called to the Bar in 1865 and practised for a short period. He returned to England and worked as a journalist there and later in Toronto. His pub. works include *The Canadian Portrait Gallery* (1880-81); *The Last Forty Years: Canada since the Union of 1841* (1881), in collaboration with Henry Scadding; *Toronto: Past and Present* (1881); and *The Story of the Upper Canadian Rebellion* (1885). See also J. King, *The Other Side of the 'Story' . . . of the Rebellion*, 1886.

Dent, Joseph Malaby (1819-1926), Eng. pub., b. at Darlington. After some early training as a bookbinder in his native tn., he went to London in 1867, where he worked at his craft for sev. years before setting up his own workshop. A book-lover from the first, he began then to experiment in a small way as a book producer and publisher. Having estab. himself in offices and a bindery in Great E. Street (remote from the ordinary London publishers' purlieus) in 1888, he put forth, in a most attractive format, some notable eds. of Ellis's *Essays* and other authors. He had already formed a friendship with some of the Tynbee Hall residents, attended lectures at that White-chapel 'varsity,' and made excursions to France and Italy with them, which widened his ideas as a projector of fine illustrated books. In his quest for art he was a shrewd discoverer of talent in young

artists, among these being Aubrey Beardsley, R. Anning Bell, and Arthur Rackham. The Temple Shakespeare appeared in 1894 and *The Temple Classics* in 1896, both under the editorship of Israel Gollancz; and they were followed by pocket eds. of favourite authors, which quickly gained for him a reputation as a London publisher of the first rank. In 1897 the business was transferred to 29-30 Bedford Street, Covent Garden, and in 1912 he built Aldine House on the opposite side of the same street. In the former building he planned the scheme which developed into Everyman's Library (*q.v.*), the story



Drawing by Dora Noyes
J. M. DENT

of which venture he has told in some detail in his *Memoirs* (1928). His idea was to build up a great 'city of books' on democratic popular lines, and he always kept in view the type of reader who, like himself, had to gain his literary knowledge and information by reading vol. after vol. as time allowed.

Always zealous in the cause of education, he also produced many series of educational books, e.g. Dent's Modern Language Series, ed. by Prof. Ripman; *The Kings Treasures of Literature*, ed. by Sir Arthur Quiller-Couch, etc., which have proved their value by their wide circulation throughout the schools of the empire. The conception of *Everyman's Encyclopedia* and its realisation in its original form were also due to his enterprise. Throughout his career publishers and book-lovers and the great reading public in America appreciated and supported his many and varied enterprises. In Canada, too, he formed a growing connection by

his repeated visits, and in 1912 a branch Aldine House was opened at Toronto. He was succeeded as head of the firm by his son, Hugh Ralston (1874-1938).

Dentalium, or **Elephant's Tusk Shell**, one of the three genera of molluscs which form the class Scaphopoda. The shell is tusk-shaped and open at both ends, from the larger of which the long foot appears and is used in creeping movements. The mollusc has tentacles around its mouth, is lacking in eyes and heart, and lives in muddy sand at great depths of the sea.

Dental Service, National, see NATIONAL DENTAL SERVICE.

Dental Surgeon, see DENTISTRY.

Dent-du-Midi, mt. summit, belonging to the Swiss Alps. It is situated in the prov. of Valais, and attains a height of 10,696 ft.

Dentil (architecture), one of a series of cubical blocks, like teeth in shape, placed beneath the corona of a cornice. Mostly found in the Composite, Corinthian, and Ionic orders. Generally the height of each D. is double its width, while the interdentils, or spaces between the blocks, are one-third the height.

Dentine, see TEETH.

Dentistry, see under TEETH.

Dentition, process of cutting the teeth. See under TEETH.

Denton: 1. tn. 7 m. S.E. of Manchester, England; manufs. felt and silk hats. Pop. 17,000. 2. Vil. in the W. Riding of Yorkshire, England. 2½ m. N.E. of Ilkley. The bp. of Sir Thomas Fairfax. 3. Co. seat of D. co., Texas, N.W. of Dallas, U.S.A., raising cotton and grain and manufacturing pottery and bricks. The seat of the N. Texas College for women and of the College of Industrial Arts for women. Pop. 11,100.

D'Entrecasteaux, group of Brit. is., situated in the Pacific Ocean, off the S.E. coast of New Guinea. They consist of three prin. is., separated by narrow channels, with a total area of 1083 sq. m. Their name is derived from the Fr. admiral, Bruni D'E.

Denudation, wearing away of the surface of the earth, a process which is carried on by various agents. The effect of D. is seen in the various features of the earth's surface, as riv. valleys, gorges, and the shapes of cliffs and rocks. Water in various forms—rivers, streams, rain, frost, and glaciers—is the great cause of D., though some may be due to plants and animals. The rivers wear away their beds and make them wider with the continual flow of their water, and carry away particles of rock washed down by the rain or other agent, and so wear away the surface over which they flow, the amount of D. done by a riv. varying according to the region. Glaciers also are powerful in this respect, owing to the debris which they carry along in their courses. Rain wears away the surface of the rocks considerably both by beating on them and by chemical processes. Frost is instrumental in splitting the rocks to pieces, and in causing fissures in them, whereas the sea wears away the bases of cliffs, thus causing the overhanging rock to give way, and altering from time to time the shape

of the coast-line. The general appearance of the land, therefore, is due to the various denuding agents in any particular locality, and although many hundreds of years may pass before the change is perceptible, yet on examining the land it can be seen that it is always undergoing this D. See C. Lyell, *Principles of Geology* 1830-33.



DEODAR

Denver, cap. of Colorado, U.S.A., on the S. bank of S. Platte R., 15 m. from the E. base of the Rocky Mts. in a rolling plain. It is the largest city between the Missouri R. and the Pacific. It is the nearest large city to important gold and silver mines and oil shale deposits. The city is the official gateway to twelve national parks and thirty-two national monuments. Among the peaks visible from D. are Pike's Peak, Mt. Evans, Gray's Peak, Long's Peak, and Torrey's Peak. The state Capitol of granite, with a dome covered with Colorado gold, cost \$2,500,000. The state historical museum contains collections of relics of prehistoric, Indian, and pioneering life. The city park of 320 ac. has a collection of Colorado animals, the univ. (with over 10,000 students) and the Carnegie Library (280,000 books). From a tower 330 ft. high on the Daniels & Fisher store a bird's-eye view of D. can be obtained. It is 1 m. above the sea. The union station was built in 1914. The municipal auditorium seats 12,000. The mint is one of the three coinage mints of the U.S.A. D. is a distributing centre of the automobile industry and has the largest cattle and sheep market in the W. The leading industries are meat-packing and mining machinery and engineering. Pop. (1940) 322,400.

Denys, St., see DENIS.

Deoband, tn. of India, in the United Provs., with a celebrated Arab college, 45 m. N. of the city of Meerut. Pop. 18,000.

Deodand (Lat. *Deo* and *dandum*, to be given to God), term used for anything which had caused the death of a human being, whether that death was brought about intentionally or accidentally, as by the

law the thing was given over to the Crown to be put to some good use, and thus 'given to God.' This practice was abolished in 1846.

Deodar, native state of India, situated in Gujarat, Bombay. It has an area of about 440 sq. m., consisting of a hot sandy plain with no rivers. Pop. 19,700.

Deodar, or *Cedrus Deodara*, species of conifer, which occurs in the Himalayas. The plant is a beautiful evergreen tree, the leaves persisting for over a year, and the cone takes two or three years in ripening.

Deodätum, see **ST. DIE**.

Deodoriser (Lat. *de*, away from; *odor*, smell), substance used for destroying harmful smells, chiefly those which arise from decomposing matter. Charcoal and quicklime are very powerful **De**. Disinfectants may be **De**s. if they destroy smells as, for instance, zinc chloride.

Deogarh, tn. of India, in the prov. of Bengal, and the dist. of Sonthal Parganas. Twenty-two temples of Shiva are found there; it is a noted resort for pilgrims, and is on the E. India Railway. Pop. about 8500.

Deogire, see **DAULATABAD**.

Deols, called also **Bourg-Dieu**, tn. of France in the dept. of Indre, and lies N.E. of Châteauneuf. It is noted for its medieval abbey with its beautiful church now in ruins. Pop. 3000.

D'Eon, **Chevalier**, see **EON DE BEAUMONT**.

Deoprayag, see **DEVAPRAYAGA**.

Deora Taboor, see **DEBRA TABOR**.

Deori, tn. of Sambulpur dist., Central Prov., India. Pop. about 4000.

Deoxidation, see under **OXYGEN**.

Department (Fr. *département*), term used for a territorial div. of France corresponding roughly to an Eng. co. Before the revolution France was divided into thirty-four provs., but in 1790 by a decree of the Assembly it was redivided into eighty-three **De**s. Under Napoleon the number was increased to 130, but is now ninety. The three **De**s. of Algeria, since 1881, have been regarded as **De**s. of France proper, and in 1947 the colonies of Martinique, Guadeloupe, Réunion, and Fr. Guiana were given the status of overseas **De**s. They receive their names generally from a prominent riv. or mt. contained within their boundaries. Each **D.** is presided over by a prefect, and is divided into arrons., each under a sub-prefect. The arrons. are divided into cantons, and the cantons into coms. corresponding to an Eng. par. Paris is in the **D.** of the Seine.

De Pere, city of Browne co., Wisconsin, U.S.A. It has foundries, machine shops, and manufs. boats, paper, etc. Pop. 6300.

Depew, Chauncey Mitchell (1834-1928), Amer. politician, attended Yale Univ., and was called to the Bar in 1858. His political career began in 1861, and in 1888 he was one of the candidates for the presidency. In 1899, and again from 1905 to 1911, he was U.S. senator (for New York). Chairman of the board of directors for three railroads, including the

New York Central and Hudson R. Railroad Company.

Depew, manufacturing tn. of Erie co., New York. Pop. 7000.

Dephlegmator, section of a distilling apparatus which separates vapours of different boiling points, the less volatile being condensed and returned to the still. The simplest form of **D.** is an elongated plain or bulbous tube emerging from the still in which condensation results from air-cooling, the surviving vapours roughly representing the more volatile constituents. The most effective **D.**, however, consists of a column of bulbs so arranged that the condensed vapours are temporarily retained, while the vapours from the still pass through them. The result is that an exchange is continuously effected between the more volatile constituents of the condensed liquid and the less volatile constituents of the vapours arising from the still. If the heat is sufficiently regular, it is possible to tap distillates of different boiling points according to their distance from the source of heat.

Depilatories (from Lat. *depilare*, to pull out the hair), chemical agents, such as calcium hydro-sulphide, or a mixture of pitch, resin, and lime, used for the removal of superfluous hair from the scalp, face, or other skin surface. Electric needle treatment, known as electrolysis, is the modern and most effective depilatory.

D'Epinay, Louise Florence Pétronille Tardieu des Clavelles, see **EPINAY**.

Deploy, military expression, meaning literally to unfold. A general is said to **D.** or spread out his troops when he so alters their formation as to present a wider front to the enemy, his object being to have as many weapons as possible on the front and fighting line.

Deportation, term revived during the First World War to describe the practice adopted by Germany of deporting the civil pop. of an enemy country which had been occupied. This was carried out in Belgium, and the practice was adopted largely to secure what was in effect slave labour. Not only the Belgian working class, but even high officials suffered, e.g. Burgomaster Max was deported to a Silesian fortress in Sept. 1914. On Oct. 3, 1916, a decree was issued from Ger. general headquarters authorising Ger. military courts to deport, for the purpose of forced labour, any unemployed Belgians. The order raised a storm throughout many civilised countries, but it was put into execution, and thousands of men were compelled to work in Germany, thus releasing men for service in the field. During the Second World War Germany resorted to the same practice on an even larger scale, and the forced labour thus secured was organised with thoroughness and brutality as a part of the Ger. war machine. The Polish people suffered the most in this respect. After the invasion of Poland in 1939 unknown numbers of Poles were driven from their homes and transported to what were described by their conquerors as special reserves, but were, in fact, no more than

open country, while it is estimated that some 3,000,000 Poles were put to forced labour in Germany during the course of the war. Over 1,000,000 Poles were also deported to Russia in 1939, and of these a number were later drafted into the Polish Army which was created in the U.S.S.R. to fight against Germany. France also suffered severely during the Ger. occupation, and the number of Frenchmen deported for labour in Germany amounted to 765,000. In 1943 there was also wholesale D. of Jews from Denmark at the hands of the Gers., and the civil pop. of Norway also suffered in the same way. (See also DISPLACED PERSONS.) For D. as a statutory punishment during the seventeenth and eighteenth centuries, see TRANSPORTATION. See A. J. Toynbee, *The Belgian Deportation*, 1917, and E. M. Kulischer, *The Displacement of Population in Europe* (International Labour Office), 1943.

Deposit, in the law of bailments (borrowed from the Rom. law), signifies a movable thing which a man puts in the hands of another to keep till it is asked back, nothing being given to the depositary for his custody of the thing. The benefit being entirely unilateral, the depositary is not liable for loss or deterioration, provided he is not guilty of dishonesty or gross negligence. If, however, he voluntarily undertook the custody of the thing, he would be answerable for loss or damage occasioned by merely slight neglect. Money is said to be on D. with a banker as opposed to money on current account. The transaction is really a loan, repayable by the banker on demand with or without interest, according to agreement. In contracts for the sale of land D. means a sum customarily given in part payment of the purchase money as a guarantee of good faith.

Deposition. By the action of the various superficial or epigene agents of change (wind, sun, rain, running water, and frost) rocks are disintegrated and the material transported from place to place, finally forming the sev. deposits classified below. *Eolian deposits* are those deposits, showing no definite stratification, formed by the action of the wind. Examples of these are the sand dunes which occur on our coasts and the remarkable loess found in the valley of the Rhône and extending over the whole of central Europe. *River deposits* occur in banks and terraces. The sediment carried by the riv. in suspension is laid down where the current is slackest along the riv. course. Thus, alluvial fans and cones are formed at the bases of hills where there is a sudden decrease in the gradient of the riv. When a stream reaches a lake or the sea, its current is destroyed and the sediment in suspension is dropped, giving rise to deltas and 'lacustrine deposits.' The main types of riv. deposits are alluvial cones and fans, alluvial plains, deltas, and levees. *Glacial deposits* are occasionally of considerable thickness, as in terminal moraines (see GLACIERS). *Lacustrine deposits* may be mechanically formed, as

when sediment is deposited from rivs., or may be chemically or organically formed. The chemically formed deposits are chiefly deposits of sodium chloride and carbonate and sulphate of lime, caused by supersaturation of the waters due to evaporation. The organically formed deposits are calcareous shells of fresh-water molluscs, or may be the siliceous remains of diatomaceous plants. *Marine deposits* are of the greatest importance, and may be divided into two classes: (1) Shore or littoral deposits, and (2) deep-sea deposits. The former consists of gravel, sand, or mud brought down by rivs. or worn off the coasts by wave action, i.e. are made up of terrigenous or land derived material. The material brought down by rivs., if not directly deposited to form deltas, may be carried out and deposited on the sea bottom. The deposits thus formed may vary, alternately coarse and fine, according to the state of the riv.; but in the case of material formed by wave action, it is always arranged in order of coarseness, gravel nearest the coast, then sand, then fine mud and silt. These mechanical deposits are found fringing the land to a distance of from 100 to 200 m. out to sea, corresponding more or less with the 100-fathom submarine contour. On the outer edges of this fringe are found the blue, red, and green, and the volcanic muds. Beyond this depth we find the second class of marine deposits. These are chiefly organic, and are either calcareous or siliceous. The calcareous deposits are formed by the accumulation of coral polyps, giving rise to reefs and coral is. The Globigerina ooze, which occurs throughout the Atlantic Ocean and in parts of the Indian and Pacific Oceans, consists of the calcareous shells of Foraminifera, which live at the surface of the water, but which after death sink and accumulate upon the ocean floor. Beyond a depth of about 2 m. this ooze is not found, since the shells are dissolved before they reach the bottom. On the ocean floor in the deeper parts, below 2½ m., are found the siliceous oozes, i.e. the radiolarian and diatomaceous oozes. The former is made up of the siliceous shells of Radiolaria, and is found in the E. Indian Ocean and in the Pacific. The latter, consisting of the siliceous frustules of diatoms, is found in a wide belt encircling the S. Ocean. Red clay is a red-brown deposit, and consists of the insoluble residue of Foraminifera, manganese nodules, glauconite crystals, pumice, volcanic and meteoric dust, and phosphatic nodules. It is found in the deepest parts of the oceans below 2500 fathoms, and contains fossils such as the teeth of sharks and the ear bones of whales. The greater part of the floor of the Pacific Ocean is covered by the red clay, which is the most widely spread oceanic deposit. For classification of deep-sea deposits see Sir John Murray's *Report of Challenger Expedition*, 1891.

Deposition, in law, the written testimony of a witness in a judicial proceeding. Ds. before a magistrate are the sworn statements or affirmations of those who

are cognisant of the facts relating to a crime for which some person has been arrested. These statements are committed to writing, by the magistrate's clerk, and read over and signed by the witness making them and by the magistrate. Such Ds. are not evidence at the trial of the accused, but those of a witness who is dead or too ill to travel are evidence. Ds., whether in favour of or against the prisoner, may be taken before the committing magistrate in the presence of the prisoner, and subsequently given in evidence at the trial. To perpetuate the testimony of persons whose death is apprehended, or who are dangerously ill, a magistrate has power to take their evidence down in writing and transmit it to the proper quarter to be read at the trial in the event of the deponent proving unable to appear. In all these cases the prisoner must be given an opportunity of cross-examining the deponent at the time the D. was taken. In civil courts, where the rule against hearsay evidence is less strictly applied, Ds. were before the Judicature Acts the normal manner of producing evidence on the trial of a suit in chancery. At the present day witnesses must be called, although affidavits are in common use for the purpose of furnishing evidence upon minor issues of fact.

Deposition of Clergymen is usually the result of immorality, matrimonial infidelity, or heresy. It involves the loss of benefice and holy orders, and is administered by the eccles. courts of the Anglican and Scottish Churches.

Depreciation, see under BOOK-KEEPING.

Depressed Classes, see UNTOUCHABLES.

Depression and Melancholia, see INSANITY.

Depression, Cyclonic, see METEOROLOGY.

Depression of the Land, see SUBSIDENCE.

Depretis, Agostino (1813-87), It. statesman, early identified himself with the conspiracies of the followers of Mazzini. Governor of Brescia in 1859, he accepted the following year the pro-dictatorship of Sicily, where his efforts to reconcile the divergent policies of Garibaldi and Cavour with regard to the political status of the Is. proved quite ineffectual. His premiership dates from 1881 to 1887. Though his administration was marred by his transformist policy, and his extravagance in finance he was instrumental in enlarging the suffrage, creating the Triple Alliance, and removing the long-disputed grist tax.

De Profundis (Lat. out of the depths), title and first words of Ps. cxxx., one of the seven penitential psalms. According to the Rom. rite it forms part of the office for the burial of the dead.

Deptford, metropolitan bor. of London, separated from Greenwich by the Ravensbourne, 3½ m. E. of London Bridge. Part of St. Paul's par. lies in Surrey, whilst the whole of St. Nicholas' lies in Kent. The bor. consists only of the par. of Deptford St. Paul, that of Deptford St. Nicholas being included in Greenwich. Here are the royal victualling yard, which supplies the R.N., a hospital for master

mariners, and Goldsmiths' College. D. is a dist. of poor streets, but there is a park of 11 ac. on the site of Sayes Court where Peter the Great stayed in 1698. D. is rich in historic memories. Here it was that Elizabeth knighted Drake on his return from his voyage round the world in the royal dockyard laid down by her father, and open until 1869. In a street brawl in D., Marlowe, the dramatist, met his death, and here lived Lord Howard, Evelyn, Adm. Benbow, and Grinling Gibbons, the sculptor. The acreage is 1562.7. Pop. 112,500.

Depth Charge, explosive device for sinking hostile submarines. It is a case containing a high explosive charge ignited by a hydrostatic valve. This valve can be set to the required depth below the surface. Even if the explosion fails to sink the submarine it may be sufficient to force it to rise to the surface, when it may be sunk by gun fire. A D. C. may either be released from an inclined chute or projected by a mortar. The second method has the advantage that it enables the charge to be fired at its objective, instead of delaying action until the vessel reaches the point where the submarine was located. Between thirty and forty Ger. submarines were sunk by D. Cs. in the First World War, and they were used with success by the R.N. in the Second World War.

De Quincey, Thomas (1785-1859), Eng. author, after an adventurous career as a youth, during which he cemented friendships with Wordsworth, Lamb, and other famous personages, and visited Scotland and the metropolis, found himself before he was thirty a victim of the opium habit. Settling at Kendal, he earned a living in 1819 as editor of the *Westmorland Gazette*, a position he held for about two years. He then went to London, and was introduced by Lamb to the best literary society. He began to write for the *London Magazine*, and to this periodical contributed the *Confessions of an English Opium Eater* (1821). He thenceforth wrote regularly for the monthlies, and became a frequent contributor to *Blackwood's*, in which appeared his *Murder considered as one of the Fine Arts* (1827, 1839). He pub. his novel *Klosterheim* in 1839, and his *Logic of Political Economy* twelve years later. De Q. is as happy when writing hist. as when writing literary criticism, as much at home when portraying his contemporaries of the Lake school as when engaged upon the story of his own life. He is so full of learning that he is always digressing. Even when his judgment is not sound there is no doubt about the depth of his erudition. And with all this he is no dry-as-dust, no mere pedant, even when the subject matter of his essay is caviare to the general, for he had studied life as well as books. One of his greatest merits is his splendid prose style. It is true that this is not always sustained, but when the spirit moved him there was no height to which he could not attain. Excellent when writing on such abstract subjects as the Literature of Knowledge and the Literature of Power, he could be pathetic.

as in the episode of Ann of Oxford Street in the *Confessions*, or ironical, as in *Murder considered as one of the Fine Arts*. This last, if it lacks something of the strength of Swift's *Modest Proposal*, is free from its brutality. That this essay should be so successful is the more remarkable, because humour was by no means De Q.'s strong point. That point was his imagination, the assistance of which he did not deny himself even when writing his autobiography. It was his imagination which inspired him to such essays as *The English Mail Coach* (1849), and which enabled him to produce the dramatic ending of his essay *Joan of Arc* (1847), where he contrasted the death visions of the Maid of Orleans and her judge, the bishop of Beauvais. The collected writings were ed. by D. Masson in 14 vols., 1889-90, and the uncollected writings in 2 vols., 1890, with preface and annotations by J. Hogg. See also biographies by D. Masson, 1855; H. A. Page, 1877; J. Hogg, 1895; H. A. Eaton, 1936; and M. Elwin, 1948.

Dera Ghazi Khan, or **Dera Ghazee Khan**, dist. and tn. of the W. Punjab, Pakistan, situated in the Multan div. The area of the dist. is 5606 sq. m., and it is irrigated by gov. canals. The tn. of D. G. K. has manufs. of silk and cotton goods, and ivory ornaments. Pop. 21,000.

Dera Ismail Khan, or **Dera Ismael Khan**, dist. and tn. of the N.W. Frontier Prov., Pakistan. The dist. has an area of 9410 sq. m., and is very dry, being in parts almost desert. The tn. stands near the Indus, and has manufs. of cotton goods, scarves, and inlaid woodwork. Pop. 60,500.

Derating Act, see under **RATES AND RATING**.

Derayah, see **DARAIYEH**.

Derbend, or **Derbent** (Persian, iron gates), tn. in the autonomous S.S.R. of Daghestan, R.S.F.S.R., on the W. shore of the Caspian Sea, 153 m. N.W. of Baku, of oriental appearance, the walls and citadel having been, possibly, built by Chosroes Anosharvan, shah of Persia (A.D. 531-79), or by Alexander the Great to protect Persia against the N. tribes. Has trade in fish, fruit, and wine. Pop. 24,000.

Derby, **The Earls of**, Eng. title which has been borne by the family of Stanley since 1485. Earlier it had been held by the family of Ferrers. The family of Stanley is of very considerable antiquity. *Thomas*, second *Baron Stanley* (1435-1504), was created earl of D. in 1485, for his services at Bosworth, where he crowned the victor, *Edward Stanley*, third *Earl* (1508-72), took a prominent part in affairs military and political. He was a commissioner for the trial of Lady Jane Grey, and was a Privy Councillor under three sovereigns. *Henry Stanley*, fourth *Earl* (1531-93), was a marked character in the reign of Elizabeth. He married in 1555 Margaret Clifford, granddaughter of Mary Tudor, sister of Henry VIII. He was a commissioner at the trial of Mary Queen of Scots (1586); two years later was sent on a mission to

Spain, and on his return was appointed lord high steward. Many of the successors to the earldom distinguished themselves in one way or another; but none rose so high as *Edward George Geoffrey Smith*, fourteenth *Earl* (1799-1869). Entering Parliament in his twenty-third year, in the Whig interest, he was appointed by Canning in 1827 under-secretary for the colonies, an office he retained under Goderich. In the Grey administration (1830) he became chief secretary for Ireland, in which capacity he did excellent work. He joined the Conservatives in 1835, and six years later accepted the colonial secretaryship under Peel. He it was who persuaded Peel not to offer Disraeli a post in his administration. In 1844 he went to the House of Lords as Lord Stanley. It was not until 1851 that he succeeded to the earldom. In the following year he formed a protectionist administration, in which, having overcome his dislike and distrust of Disraeli, he gave that statesman the office of chancellor of the exchequer. This administration held office only a few months; and D. did not really enjoy the fruits of power until he again became Prime Minister in Feb. 1858, but his second ministry only lasted sixteen months. D. became Prime Minister for the third and last time in 1866, but two years later ill health compelled his resignation, and the once-despised Disraeli ruled in his stead. He was referred to by Lytton in *The New Timon* (1845) as 'frank, haughty, rash, the Rupert of debate'—which last phrase is often erroneously attributed to Disraeli, and on the whole it would be difficult to find a better description. He was not a great, or even a consistent statesman, and much of the credit that was given to him, especially in the reconstruction and reorganisation of the Conservative party after the fall of Peel, belonged of right to Disraeli. He was, however, a good man of business, and an excellent speaker. His eldest son, *Edward Henry Stanley*, fifteenth *Earl* (1826-1893), was also a statesman. Under-secretary for foreign affairs in 1852, three years later he refused the colonial secretaryship under Palmerston, but accepted that office in his father's administration. In D.'s third ministry he became foreign secretary, and retained that position under Disraeli. He succeeded to the earldom in 1869, and became again foreign secretary under Disraeli (1874-78). He went over to the Liberal camp in 1880, and two years later became colonial secretary under Gladstone; but was opposed to Home Rule, and became leader of the Liberal Unionists in the House of Lords. Like his father, he was a good speaker, and it is to the credit of his sincerity that by leaving the Conservatives in 1880 he sacrificed his succession to the premiership. He d. in 1893, and was succeeded by his brother, *Frederick Arthur Stanley*, Baron Stanley of Preston (created Aug. 1886), b. 1841; who had been M.P. for Preston, for N. Lancashire, and for Blackpool, successively, from 1865 to 1886; a lord of the admiralty in 1863, financial secretary to the war office

1874-77, to the treasury 1877-78, secretary of state for war 1878-80, vice-president of committee of Council on Education 1885, secretary of state for colonies 1885-86, president of board of trade 1886-88, and governor-general of Canada 1888-93. As sixteenth earl, he was lord mayor of Liverpool 1895-96, mayor of Preston 1901. He was at different times chancellor of the univ. of Oxford and Liverpool, and, dying June 14, 1908, was succeeded by his eldest son, *Edward George Villiers Stanley*, separately noticed as seventeenth earl (see DERBY).

Derby, Sir Edward George Villiers Stanley, Bt., K.G., seventeenth Earl of (1865-1948), b. April 4, eldest son of sixteenth earl and Lady Constance Villiers. Educated at Wellington College, and served in Grenadier Guards 1885-95. He was aide-de-camp to governor-general of Canada (his father) 1889-91. In 1893 his father succeeded to the peerage, and D. for the next fifteen years was known by the courtesy title of Lord Stanley. Returned from Canada in 1891, and in 1892 was elected as a Unionist for the West-houghton div. of Lancashire, and sat for the constituency until he was defeated in 1906. Two years after his election he was appointed a junior lord of the treasury. During the Boer war he was first chief press censor and later private secretary to F.-M. Lord Roberts. He became financial secretary to the war office in 1900, and in 1903 he was appointed postmaster-general with a seat in the Cabinet—an office which he held until 1905. His defeat in the following year was due in some measure to a controversy with post office workers over conditions of employment, in which he did not reveal the tact and sympathetic understanding so conspicuous in his later career. After his defeat he remained out of Parliament till, on his succession to the earldom in 1908, he succeeded also to a seat in the House of Lords. He did not engage in the controversies between the two Houses, preferring more congenial spheres of public activity; thus in 1909 he became chancellor of Liverpool Univ., and in 1911-12 lord mayor of Liverpool and chairman of the Lancashire Territorial Force Association. As director-general of recruiting during 1915-16, first under Lord Kitchener and later under Lloyd George, he performed one of his most conspicuous public services by organising what came to be known as the D. scheme of voluntary enlistment—the culminating effort made by the first Coalition Gov. in the First World War to adhere to the voluntary principle. When Lloyd George formed the second Coalition Gov., in Dec. 1916, D. became secretary of state for war. Early in 1918 he was appointed Brit. ambas. in Paris, and remained there for nearly two years. Though many of the larger issues in 1918-19, notably the peace conference, passed over his head into the hands of the Prime Minister and his leading colleagues, D.'s counsels carried weight, but he ended by becoming one-sidedly pro-Fr., while Lloyd George developed a bias in the opposite direction,

with the result that in 1920 D. retired. On his return to England he found the beginnings of a Conservative revolt against the Coalition, and had he put himself boldly at the head of the malcontents he might perhaps have become Prime Minister. When, however, Bonar Law became Prime Minister of a Conservative Gov., which most of the ex-Cabinet ministers of his party were debarred from joining by their loyalty to the Coalition, D. returned (1922) to his old post as war minister and only retired with the defeat and resignation of the first Baldwin Cabinet in Jan. 1924. That was his last Cabinet office, and therewith his political career ended, for he waived his claims to further office when the ex-Coalition Conservatives returned to the fold. D. was a great patron of the turf. His horses were successful in many of the great events under the rules of the Jockey Club, but it was not until 1924 that he won the Epsom Derby with Sansovino; in 1933 he was again successful with Hyperion, one of the best horses in thoroughbred list. He took the 1942 substitute race with Watling Street. Altogether he won more than 1000 prizes, including twenty 'classics,' and his prize money amounted to £245,000.

Derby, parl., municipal, and co. bor. and the co. tn. of Derbyshire, England, on the Derwent, 125 m. from London, 40 m. from Birmingham, 64 m. from Manchester, and 92 m. from Liverpool. Some of the street names, like Sadler Gate, St. Mary's Gate, and Friar Gate, have their origins in the tn.'s proud and anct. hist. Dominating the top of St. Mary's Gate is D. cathedral (All Saints') in Queen Street, the second highest (210 ft.) par. church in England. Of the sixteenth century, the tower is one of the finest examples of Gothic architecture in the country. D. is a suffragan bishopric in the diocese of Southwell. D.'s main thoroughfare, St. Peter's Street, takes its name from the anct. church standing here, one of six mentioned in Domesday Book. St. Peter's Church is in the Perpendicular style, with some Norman details. Other churches are St. Alkmund's, in Decorated style, rebuilt in 1846; St. Werburgh's, named after Werburgh, daughter of the king of Mercia, and the church where, on June 3, 1735, Dr. Johnson married Mrs. Porter. The chief Rom. Catholic church is St. Mary, designed by Pugin. In the Wardwick is the free library and museum, the latter notable for the Prince Charlie room, with its memories of the invasion by the Young Pretender. The museum and art gallery, together with the library in the same building, was presented to the tn. by Michael Thomas Bass, M.P., in 1878, extensions being made to the art gallery in 1914-15 by means of a Carnegie Trust grant. At St. Mary's Gate is the co. hall. Built in 1660, the hall has been modernised (1866), but the façade remains unaltered. Features of old D. include the 'Dolphin,' an overhanging black and white inn of 1530, standing within the shadow of the cathedral; D. School, first mentioned in a

charter of 1160 (though the present building, in King Street, dates from 1554)—Flamsteed was a pupil there; the first Methodist preaching house in St. Michael's Lane; the tall square tower, with arched, canopied roof, of John Lombe's silk mill; the chapel of St. Mary's of the Brigge, dating from the thirteenth century; and the unpretentious house in Exeter Street, where Herbert Spencer was b. The old mayor's parlour was demolished in 1848. It was a timbered Elizabethan house, and was overlooked by the new council house. The features of modern D., created by the central improvements scheme, are the council house, the bus station, the Riverside Gardens, Morledge Market, and the cattle market. The council house dwarfs all nearby buildings; it is built in russet brick, with four massive stone pillars. D. is governed by a council of sixty-four members, of whom sixteen are aldermen, elected by the councillors, who number forty-eight, and are elected by the citizens. There are fifty-one primary schools, and eighteen secondary, with four grammar schools. The D. school of arts and crafts for advanced courses in art is administered by the local authority. A school of science was commenced in 1870, the title being changed in 1891 to D. Municipal Technical College. The technical college of to-day was opened in 1899, and since then has been considerably enlarged. The D. training college, founded in 1850 by the diocese of Lichfield, became in 1927 the D., Southwell, and Lichfield College. Institutions include Queen Street baths, built in 1932; the Royal Infirmary, the hospital for women, and four other hospitals. The oldest park belonging to the corporation is the Arboretum, given to the tn. in 1840, and laid out by the architect J. C. Loudon; other parks include Darley Abbey (60 ac.), opened by the duke of Kent in 1931; Markeaton Park (200 ac.); the Racecourse Park (125 ac.); Riverside Gardens, which, like the Arboretum, is in the midst of a densely built-up area; the municipal sports ground; and various miscellaneous parks and recreation grounds. The D. airport at Burnaston, 5 m. from D., on the D.—Burton main road, is owned and controlled by the D. Corporation.

D. is a great industrial centre, renowned for the quality of its engineering products. As headquarters of the old Midland railway it soon became an important railway centre, not only for operational and administrative purposes, but by virtue of the large locomotive, carriage, and wagon works built near the station. After 1900 the process of industrial expansion continued, with the estab. of the great Rolls-Royce factory in 1906. Although D. is not one of the largest of midland industrial tns., there is considerable diversity of industries: aero engines, aircraft components, iron castings, sugar refining, electric motors, cables, can-making machinery, power presses, mining equipment, steam units for electric-power plants, hosiery, rayon, narrow fabrics and tapes, porcelain. (Royal Crown Derby porcelain), paints and chemicals.

Of the settlements made by the Angles one was called Northworchige. The Danes renamed it Deoraby. Until the Domesday survey it is evident that D. was never much more than a mkt. tn. The earthworks and defence keep which William the Conqueror had erected there were a poor defence compared with the great Norman castles erected elsewhere, and indeed its name, Copecastle, denotes market castle. Then, however, the right to have a merchant guild was confirmed, together with a monopoly in cloth-dyeing. Records show that D. sent its first two bor. members to Edward I.'s twenty-third Parliament in 1295. In the sixteenth century the houses were built of wood, and there was no refuse disposal—conditions which, of course, prevailed in other tns. In the Black Death (1349) one in every two of the total pop. of the co. d. The 1592 plague started in All Saints' par., and rapidly spread to St. Alkmund's and St. Peter's and other pars. The remarkable thing is that insanitary conditions persisted well into the nineteenth century. D.'s charter was confirmed from time to time, and in James I.'s reign six fairs were permitted. In 1637, under a charter of Charles I., local gov. was vested in a mayor, nine aldermen, and a number of brethren and burgesses, and the number of fairs permitted was increased to seven. D.'s last charter was granted in 1682 by Charles II. D. began to emerge as a manufacturing centre at the end of the seventeenth century. In 1719 Thomas Cotchet introduced England's first silk mill, on the Derwent. John Lombe, a mechanic at this mill, went to Piedmont, where he made drawings of the secrets of the lt. machinery, and built a large new mill next to Cotchet's. By 1750 more than 300 people were working in it; but to-day only the tower survives. An impetus was given to industry by the opening of the D. Canal. Three years later (May 30, 1839) the railway came to D., at first between Nottingham and D. only, but soon afterwards the Birmingham, Gloucester, and D. Junction railway was opened, and in 1841 D. was linked by rail to Leeds, and on the amalgamation of the separate companies into the Midland Railway Company, D. was made its headquarters, a circumstance, which, as indicated above, was to have a great effect on D.'s ultimate growth. The city returns two members to Parliament. Pop. (1931) 142,000; estimated (1949) (including suburbs) 190,000.

Derby, city of New Haven co., Connecticut, U.S.A., 10 m. W. of New Haven. It has an opera house and a public library. Among its manufs. are pianos and organs, woollen goods, pins, keys, typewriters, and ammunition. Pop. 10,200.

Derby China, porcelain known for its vivid crimson colouring, chrome green, mazarine blue, and its ornate gilding. The industry seems to date from the middle of the eighteenth century. Early D. C. was made of a glassy grit and clay. Later bone ash was introduced. Figure and group modelling were always characteristic of the best D. C. The marks used

were the letter D and the word Derby in script, but the first generally recognised mark is the D with a small anchor crossing the upward stroke, and the anchor and crown used during the Derby-Chelsea period. The earliest names of makers were those of Wm. Duesbury, father and son, and Bloor. The Crown Derby Company was formed in 1877 and, in 1890, it was granted the privilege of changing its title to the Royal Crown Derby Porcelain Company.

Derby Day, second day of the summer meeting at Epsom in Surrey, falling sometimes in May, sometimes in June. The most important races are run on this day, especially the D. race for the celebrated D. stakes, instituted by the earl of D. in 1780. The subscription for the D. is £50, the winner receiving a sum not less than £5000. The road from London to Epsom is covered on this day by a continuous stream of automobiles, coaches, carriages, vans, coster carts, etc. There is also a D. run every spring at Churchill Downs, the famous race track in Louisville, Kentucky, U.S.A. The winner receives \$10,000.

Derbyshire, midland co., England, bounded by Yorkshire, Cheshire, Staffordshire, Leicestershire, and Nottinghamshire. The S. part of the co. is fertile, and produces cereals and root-crops, but the N. is very rugged and mountainous, and the Peak dist. provides some of the most picturesque scenery in England. Here, in the S. spurs of the Pennine chain, rise the numerous rivs. of the co., tribs. of the Mersey, the Don, and the Trent. After the Trent itself, which intersects the S. part of the co., the chief rivs. are the Derwent, Wye, Dane, Goyt, Dove, and Rother. In the neighbourhood of Buxton and Matlock are valuable medicinal mineral springs. One of the chief industries of the co. is coal-mining, chiefly in the E. div.; other minerals and metals worked are iron, lead, zinc, barytes, fluorspar, and gypsum. Sandstone, marble, and pipe-clay for the potteries are also obtained. Sheep-farming is very extensive in the hilly dist. of the N., while the S. plains form a noted corn-growing and dairy-farming dist. Other industries are porcelain, silk, cotton, hosiery, iron, woollen, lace, and elastic-web manufs. The chief rivs. are Derby (the co. tn.), Matlock, Buxton, Chesterfield, Glossop, Ilkeston, and Belper. D. contains numerous antiquities, but its only important historical association is with the retreat of Prince Charles Edward (1745). The chief places of interest are the ruined abbeys of Dale and Beauchief, the Saxon crypt of Repton, Haddon Hall, Hardwick Hall, and Chatsworth. The stone circle at Arbelow is the most important in England after Stonehenge. Since 1885 D. returns ten members to Parliament, two for the bor. of Derby and eight for the co. Area 1029 sq. m. Pop. 757,000.

Derceto, or **Dercetis**, Gk. name for the Syrian goddess Atargatis, who is depicted as half woman and half fish. She is identified with Astarte, and the centre of her worship was Hierapolis.

Dercum, Francis Xavier (1856-1931). Amer. neurologist. In 1892 he described the disease known as D.'s disease (*Adiposis dolorosa*). His chief works are *Clinical Manual of Mental Diseases* (1913); *Biology of the Internal Secretions* (1924); and *Physiology of the Mind* (1925). Modern treatment of certain mental disorders owes much to D.'s pioneering work in showing the relationship between such diseases and the glands.

Derecske, com. in Bihar co., Hungary. Pop. 10,000.

Dereham, East, mrkt. tn. of England in Norfolk, 16 m. N.W. of Norwich. There are iron foundries, malt-houses, coach works, and a boot factory. A monument has been erected to Wm. Cowper, the poet, who took up his residence here in 1796, and is buried here. George Borrow was b. here in 1803. Pop. 6000.

Derelict, term in Eng. law, denoting any property which the owner has deserted or wilfully cast away. It is most commonly applied to a ship abandoned by the captain and crew. The first concern to a wreck can claim salvage from the Crown or from the persons who have a right to unclaimed D. vessels. Land reclaimed from the sea is said to be D. (i.e. forsaken by the sea, from Lat. *derelinquere*), and belongs either to the owner of the adjoining lands, supposing it is given up gradually, or to the Crown in case of a sudden and considerable recession of the sea.

Derg, Lough, 4 m. N.W. of Pettigoe, co. Donegal, Eire, is 3 m. long by 2½ m. broad, with an area of 24 sq. m. It has a beautiful aspect, in spite of its wild, dreary shores, being studded with many small is. Saint's Isle has the remains of a ruined priory. Station Is. was the reputed scene of St. Patrick's purgatory, and was long one of the most celebrated places of pilgrimage in Ireland. It is still visited by many of the Irish from June 1 to Aug. 15.

Derham, William (1657-1735), Eng. philosopher and divine, b. at Stoulton, near Worcester. In 1696 he pub. the *Artificial Clockmaker*, and from 1711 to 1712 he was Boyle lecturer. His other works are *Physico-Theology* (1713); *Astro-Theology* (1715); *Christo-Theology* (1730); and *A Defence of the Church's Right in Leasehold Estates* (1731).

De Rivera, Primo, see PRIMO.

Dermatine, mineral compound with a sp. gr. of 2.1, found in Waldheim, Saxony, and consisting of silica, magnesia, protoxide of iron, and water. It is reniform, stalactitic, brittle, and resinous, its colour being blackish-green with yellow streaks.

Dermatitis, skin disease accompanied by inflammation. It may be due to a number of causes. Specifically, *Eczematous D.* is an affection in which the skin becomes inflamed and is subject to severe desquamation of the cuticle.

Dermatology (Gk. *derma*, skin), the science of the treatment of the skin and skin diseases. See SKIN.

Dermestidæ, a family of Coleoptera, contains numerous species of beetles which are harmless when adult, but in the

larval stage do much damage to the collections of naturalists, and are particularly destructive to skins.

Derna, coast tn. in Cyrenaica. It is situated on a bay which is frequently inaccessible during spring and winter, in an oasis of date palms and bananas. After Benghazi it is the most important settlement in Cyrenaica. The tn. changed hands sev. times during the campaigns in N. Africa in the Second World War. It was captured by the Brit. on Jan. 30, 1941, and reoccupied by the Its. on April 8, recaptured on Dec. 22, and again reoccupied by the Ger. and It. armies on Feb. 7, 1942. It finally fell to the Allies in the Eighth Army advance after El Alamein in Nov. 1942. Pop. 10,000.

De Robeck, Admiral Sir John Michael (1862-1928), second son of fourth Baron de R. of Gowan Grange, Naas, Eire. Entered the R.N. as a cadet 1875, captain 1902, rear-admiral 1911. Vice-admiral 1917, admiral of the fleet 1925. At the outbreak of the First World War was appointed to command of 9th Cruiser Squadron, and was engaged in the protection of commerce on the Finistère station, where he captured the N.-Ger. Lloyd steamer *Schlesien*. He was appointed second in command of the fleet at the Dardanelles early in 1915, and succeeded to the chief command on March 16, 1915. At the end of 1916 he was appointed to command the 2nd Battle Squadron of the Grand Fleet, a position he retained to 1919, when he was appointed commander-in-chief of the Mediterranean Fleet. At the same time he was Brit. high commissioner at Constantinople pending the signature of Turkey to the peace treaty. In 1922 he was appointed commander-in-chief of the Atlantic fleet and held that position until 1924.

De Rougemont, Louis, real name Henri Louis Grin (1847-1921), pseudo-explorer. Native of Gressy, Switzerland. Became known first through his address to the anthropological section of the Brit. Association, on Sept. 9, 1898, in which he claimed to have lived for thirty years among the Australian aborigines. His imaginary adventures in company with an E-kimo named Etukishuk were pub. serially in the *Wide World Magazine*. His complete exposure as an impostor was made in the *Daily Chronicle*. D. in Kensington infirmary.

Déroulède, Paul (1846-1914). Fr. man of letters and politician, studied law from 1863 to 1869, and was called to the Bar in 1870. During the Franco-Prussian war, in which he served, he was taken prisoner at Sedan whilst trying to rescue his wounded brother (1870). His *Chants du soldat*, pub. in 1872, attained such popularity that in 1875 he was encouraged to bring out his *Nouveaux Chants d'un soldat*. Gounod wrote the music for his patriotic hymn, *Vive la France*, which was sung at the exhibition of 1878. His name is especially associated with the *Ligue des patriotes*, which he instituted in 1882. But when he tried to use the organisation to promote the cause of Gen. Boulanger, he was obliged to retire from his presi-

dency. The league was suppressed by the gov. in 1889 as a political menace. Deputy for the first time in 1889, he became notorious for the violence of his anti-Dreyfus policy. Banished in 1900 for attempting to replace the parl. constitution by the Republican plebiscite, he was allowed to return to France in 1905.

Derrick, Samuel (1724-69), Eng. writer, was first a linen-draper, then a play-actor, and finally succeeded Beau Nash as master of ceremonies at Bath and Tunbridge. Gross immorality brought to a miserable end his prodigal career, yet Boswell tells us that Dr. Johnson always spoke of him with kindly feeling. His literary performances have sunk into oblivion.

Derry, see LONDONDERRY.

Derry, tn. of Rockingham co., New Hampshire, U.S.A., 10 m. S.E. of Manchester. It is a summer resort and sends milk to Boston, and has sundry manufacturing. Pop. 5100.

De Ruyter, Michiel Adriaan (1607-1676), Dutch naval commander, b. at Flushing, where there is a monument to him in the Jakobskerk. A captain in 1635, he was stationed some time in the E. Indies, and in 1647 sunk a detachment of Algerian ships off Salée. In 1652 he succeeded in preserving his convoy of merchantmen in spite of the conflict with the Eng. fleet near Plymouth. During the war of 1652-54 De R. ably seconded van Tromp, so that at the close of the struggle the Dutch leaders had at least held their own against Adms. Blake and Monk. During the second Eng. war, de R. obtained a narrow victory, after a tough fight, over Monk in 1666, but was himself obliged to retreat to Dutch harbours before Ayscue a little later in the same year. But it was in 1667 that de R.'s daring brought him his highest glory, for with de Witt he sailed up the Medway as far as Chatham, and there destroyed all the Eng. shipping. In 1659 he had aided Denmark by conquering the Swedish fleet. In 1671 he won some advantage over the combined Eng. and Fr. fleets in Solebay, but in 1676, whilst engaging in a desperate encounter with the Fr. Adm. Duquesne at Syracuse, he received a mortal wound.

Dervishes (from a Persian word meaning 'seeking doors,' that is 'beggars') are the same as the Arabian fakirs. In the earliest times the D. were the passionate disciples of some revered sheikh or master, learning from him words of wisdom, and fighting his battles against the unbelievers, but sometimes also deserting him to return to the world. Of the thirty-two orders of D. and the countless sub-orders, the best known is probably the Qalandarite, which figures in the *Arabian Nights* as the Calenders. This fraternity, the members of which are under an oath always to travel, is an offshoot of the Baktashite order, which flourishes in Albania and Turkey, and consists really of antinomians, like the Rifates or howling D., who in their ecstasy are held to be under the influence of divine inspiration, and can therefore commit the most horrible crimes with impunity. But

their favourite actions at such periods are to cut themselves with knives, or to eat serpents, fiery coal or glass, or like the Mevlevis, founded by the pantheist Jelâl-ud-Din, to perform the most extravagant of dances. During their novitiate, candidates for admission to an order are almost invariably subjected to hypnotic influence from the sheikh. Attached to these orders are fellowships of lay brothers, not unlike the lodges of Freemasons. The theology is invariably some form of Sufism which embraces a belief in the sufi hierarchy of saints. In spite of the wearisome sameness of their pious formulas and recitations, the D. are still held in the highest veneration among the people.

Derwent: 1. Riv. of Cumberland, England, rises near Bow Fell and Scafell, and flowing N. and N.E. to D. Water and Bassenthwaite, then W. through a narrow valley past Cockermouth, falls into the Solway Firth near Workington, a total length of about 31 m. The water is wonderfully clear, but the riv. is not navigable. 2. Riv. of Derbyshire, England, rises in Bleaklow Hill, N. of the peak, and flowing through a narrow valley, where it receives the Noe and Wye, flows S. past Chatsworth, Matlock, and Belper into a low plain S. of Derby. From here it flows S.E. in a very winding course, to join the Trent, near Sawley, on the Leicestershire border, a total distance of about 60 m. The riv. is not navigable except for pleasure boats in certain reaches near Matlock. 3. Trib. of the R. Tyne, England, 31 m. long, forming for part of its course the boundary between Northumberland and co. Durham. 4. Riv. of Yorkshire, England, rising on the Yorkshire moors, and flowing 57 m. S. through Malton to join the Ouse between Selby and Goole.

Derwent Water, lake in the S.W. of Cumberland, England. At a height of 238 ft. above sea level, it stretches for 3 m. to the S. of Keswick. An enlargement of the D. R., which flows out towards the Irish Sea at the N. extremity, its greatest breadth is 1 m., the depth never exceeding 72 ft. Overlooked by Castle Head (530 ft.) and distant mts. at the foot, and enlivened by abrupt rocky banks, it is noted for its wild beauty, and especially for the Floating Isle and the Lodore Falls near its head. Brandelhow, on the W. side of the lake under the slopes of Catbells, and brought by public subscription in 1902, was the first National Trust property in the Lake Dist. Castle Head (1 m. S. of Keswick) was presented by Sir John and Lady Randles in 1925, as was also Crow Park, close to Keswick. Friar's Crag and Calf Close Bay, on the E. side of the lake, were bought by public subscription in 1922 as a memorial to Canon Rawnsley. The Ruskin memorial on Friar's Crag was handed over to the trust in 1900. Cockshott Wood and Stable Hills, also on the E. side of the lake, were presented by their owners in 1925 and 1929 respectively.

Derwentwater, James Radcliffe, or **Radcliffe, Earl of** (1689-1716), leader in the Jacobite rebellion of 1715, was cap-

tured and confined to the Tower of London after the rout at Preston. His youth, courtesy, bravery, and rank, as also the efforts of his friends, and his own appeal for the king's mercy were powerless to stay his execution in 1716 on Tower Hill.

Derzhavin, Gavril Romanovitch (1743-1816), Russian poet, b. at Kazan. In 1762 he entered the army as an engineer, and in 1791 the Empress Catherine appointed him secretary of state, and in 1802 minister of justice. His best poetry was produced during the busiest part of his career, and is marked by sublimity and vigour of thought and expression. His most famous work is *Oda Bog, or The Address to the Deity*. His works have sev. times been reprinted and trans. since the first collected ed. in 1810. His complete works (in 7 vols.) were not pub. until 1864-73.

Desaguadero: 1. Riv. of Peru and Bolivia, since 1904 part of the boundary of Bolivia. It is a sluggish stream, not navigable beyond Corocoro, draining Lake Titicaca and flowing S. for 184 m. with gradually lessening volume to Lake Pampa Aullagnas or Poopo. It gives its name to the valley dist. of the Andes, through which it flows. 2. Riv. in the W. of the Argentine, draining a depressed area of saline lakes and small streams, including Laguna Belvedere, and with apparently no outlet to the ocean. In its lower courses it is known as the Rio Salado.

Desaix de Veygoux, Louis Charles Antoine, see VEYGOUX.

Desart, Sir Hamilton John Agmondesham Cuffe, fifth Earl of and seventh Baron, also Viscount Castle Cuffe, of Desart, co. Kilkenny (1848-1934), b. Aug. 30, second son of third earl. Called to Bar, 1872; solicitor to Treasury and queen's (and king's) proctor, 1894-1909. Director of public prosecutions, 1894-1908. Succeeded to peerage, 1898. Brit. representative in various negotiations abroad. During his tenure of office as director of public prosecutions he undertook the prosecutions in the following *causes célèbres*: Jameson Raid case; Jabez Balfour, of Liberator front notoriety; the Maybrick murder case; the moat farm murder; the trial of Neil Cream; and the Lord Russell bigamy case in the House of Lords.

Desaugiers, Marc Antoine Madeleine (1772-1827), Fr. dramatist and songwriter, b. at Fréjus; fled from the terrors of the revolution to San Domingo, where, however, during the great Negro rebellion he was captured and was within an ace of losing his life. On his return to France in 1797 a storm of popular applause at once greeted his operas and comedies, which were produced in rapid succession at the Théâtre des Variétés and the Vaudeville. A higher literary merit belongs to his drinking songs and lampoons, which he sang himself with considerable *clat* in many Parisian salons. At his death he was acting as manager of the Vaudeville.

Desbarres, Joseph Frederick Wallis (1722-1824), engineer, b. in England, of Huguenot parents. During the siege of

Quebec he served as aide-de-camp to Gen. Wolfe, and was in the act of reporting to Wolfe when the latter received his mortal wound. The engineering operations during the conquest of Canada, which followed, were under his charge, whilst from 1763 to 1773 he surveyed the shores of Nova Scotia. When he had made a number of charts of the N. Amer. coast for Lord Howe, he accepted the lieutenant-governorship first of Cape Breton (1784-1804), and afterwards of Prince Edward Is. (1805-13).

Desborough, John (1608-80), Eng. soldier and statesman, b. at Eltisley, Cambridgeshire. In 1636 he married Jane, sister of Oliver Cromwell, on whose side he fought gallantly during the Civil war, and whom he upheld in Parliament. He opposed Cromwell's assumption of royalty, however, although he sat himself in Cromwell's House of Lords, and after the protector's death he became a strong partisan of Fleetwood. Made a councillor of state by the Rump Parliament in 1659, he was later dismissed, and in 1660 and 1666 he was imprisoned in the Tower for intrigue. His death occurred at Hackney, London. Butler satirised him in *Hudibras* and the *Parable of the Lion and Fox*.

Desborough of Taplow, Baron, see GRENFELL.

Descartes, René (Latinised as *Renatus Cartesius*) (1596-1650), Fr. philosopher, b. at La Haye, in Touraine, and educated at the Jesuit school of La Flèche. In 1617 he went to Holland and entered the army of Prince Maurice of Orange. In 1619 he entered the service of Bavaria, and while in winter quarters at Neuberg on the Danube found time for the reflections which afterwards resulted in the *Discours de la méthode*. In 1625 he settled in Paris, but went to the Netherlands in 1629, and lived there mainly until 1649. In 1650 he went to the court of Sweden at the invitation of the Queen Christina, but he d. at Stockholm within a few months. In 1666 his body was removed to Paris, and in 1819 transferred to St. Germain-des-Près. D. is generally considered the 'father of modern philosophy.' Even in his school-days he found it impossible to accept scholastic tradition and theological dogma as knowledge, and his first step towards evolving a philosophical system was to discard all books. In 1637 appeared the *Discours de la méthode*, in which he traces his mental development from his earliest years to the point when he refused to believe anything unless it were supported by incontrovertible and absolute proof. Starting with doubt as the only sure test, he applied it to all that had hitherto passed as knowledge, and the only proposition which stood the test seemed the fact of his own existence. This he formulated as 'Cogito: ergo sum,' clearly describing the relation between consciousness and existence. From this he next concluded that 'whatever is clearly and distinctly thought must be true,' whence he arrived at the idea of the existence of a Perfect Being, because from the intuition of our own imperfection we evolve the idea of perfection, and if the

idea of perfection is certain, then perfection must exist. The cardinal point in the philosophy of D. is the essential difference between spirit and matter, between thinking and extending substances, into one of which classes all things fall, and which can in no way exert any influence upon each other or partake of each other's attributes. The principles of the *Discours de la méthode* are dealt with more fully in *Méditations de prima philosophia* (1641) and *Principia philosophiæ* (1644). From philosophy he applied his principles to physics, and his celebrated theory of vortices, explaining the motions of the heavenly bodies, was only superseded by Newton's theory of gravitation. It was



RENÉ DESCARTES

Engraving from the painting by Franz Hals.

in mathematics that D. achieved the most lasting results; he first recognised the real meaning of the negative roots of equations and founded analytical geometry, the application of algebra to geometry. Besides his philosophical and mathematical treatises, D. was the author of *Traité des passions de l'âme* (1649), for Queen Christina. See also CAMBRIDGE PLATONISTS; INNATE IDEAS. See J. Millot, *Descartes, sa vie, ses travaux, ses découvertes*, 1867-71; K. Fischer, *Descartes and his School* (Eng. trans.), 1887; *Descartes: his Life and Times*, and trans. of the chief works by Elizabeth S. Haldane, 1905-11; *Cambridge Modern History*, vol. IV., 1906, 'Descartes and Cartesianism'; G. Milhaud, *Descartes, Savant*, 1921; C. von Brockdorff, *Descartes*, 1923; C. Adam and G. Milhaud, *Correspondance*, 1936-41; L. Brunschwig, *Descartes et Pascal*, 1945; and S. V. Koeling, *Descartes*, 1948.

Descent (from Norman-Fr. *discent*), see — in heredity, DARWINISM; in law, INHERITANCE; in science, BIOLOGY.

Deschamps, Eustache (c. 1338-1415), Fr. poet, b. at Vertos in Champagne. Ope

of the victims of the siege of Rheims and an eye-witness of the march against Chartres and the signing of the treaty of Bretigny (1360), he cherished to his death a bitter hatred of the Eng. nation. Besides serving in the Flemish wars he is said to have suffered imprisonment by the Saracens, and to have wandered through Syria and Egypt, besides visiting Italy and Hungary. In his roamings from castle to castle, where he entertained lords and ladies with his songs, he must fully have satisfied his innate spirit of adventure. In 1360 he became vassal to Princess Isabella, and for some time he was *huissier d'armes* to King Charles V. Indeed, the list of honourable offices he held under nearly all contemporary princes attests his great popularity. The numerous *virelays*, *satires*, *ballades*, *rondeaux*, and farces of this roi de Laidure, as he styled himself, which were unprinted till 1832, justify his claim to be recognised as the first lyric poet to write in modern Fr. His one epic poem was entitled *Miroir de Mariage*. His complete works were pub. by Q. de Saint-Hilaire and G. Raynaud in 11 vols. (1878-1903).

Deschanel, Emile Auguste Étienne Martin (1819-1904), Fr. man of letters, b. at Paris, was appointed to the professorship of rhetoric at Paris. He was obliged to leave France because of the vehemence with which he preached republican doctrines in his *Catholicisme et Socialisme* (1850). But in 1881 he was elected to the chair of modern languages in the Collège de France. Most of his pub., e.g. *Les Courtisanes grecques* (1854), *Études sur Aristophanes* (1867), and *Le Romantisme des classiques* (1882), deal with the literature of the ancients. His son, Paul Eugène Louis (1856-1922), was president of the Fr. republic in 1920.

Des Chutes, riv. of U.S.A., which rises on the E. side of the Cascade Mts. Its course is chiefly N., and its length is about 320 m. It flows through a volcano dist., intersecting Wasco co., and finally enters the Columbia R.

Descriptive Geometry, theoretical basis of architectural and mechanical drawing. The architect has to represent by plans, elevations, and cross-sections the building under construction in such a way that his drawings are not only intelligible to the contractor, but also so that the latter can deduce the actual dimensions of each part represented on the diagram. *See further under GEOMETRY.*

Deseronto, small tn. of Ontario, Canada, situated on the bay of Quinté, in Hastings co., about 30 m. S.W. of Kingston. Has trade in lumbering and fruit growing. Pop. 2000.

Desert (Lat. *desertum* from *deserere*, to abandon), geographical term for a barren and uninhabited dist. of large extent. The term is used to include the Tundras (q.v.), or frozen plains fringing the Arctic regions, the great ice-wastes of the Arctic and Antarctic continents, and sometimes the temporary wastes or steppes which are covered with vegetation only for a few months in the spring. The name is more usually restricted, however, to the hot,

dry dists. of the S. latitudes, where the temps. are extreme, the rainfall very scanty, and evaporation very rapid. These hot Ds. occur in two belts encircling the earth; in the N. hemisphere there stretch the Great Sahara, Libyan, and Nubian Ds., the Ds. of Arabia, Persia, Turkestan, and Gobi, and continued in the great basin of N. America. The S. ring, less extensive and more broken, includes the Kalahari D. in Africa, the interior of Australia, and the Atacama D. in S. America. The essential characteristic of a D. is its lack of rain and the scarcity both of moisture on its surface and of watery vapour in the atmosphere which might decrease the excessive radiation. The temps. are extreme, ranging from 120° F. in the daytime, with the sand itself at a temp. of 150° F., to below freezing-point at night. Ds. occur at all altitudes, from below sea level to several thousand feet above it, and may be of a flat appearance broken only by driving waves of sand, and bounded by the sharp circle of the horizon, or a rocky plateau, hollowed and cut into valleys and ravines. Cloud-bursts provide the greater part of the scanty rainfall, and sandstorms of terrific force and velocity are of frequent occurrence. The mirage (q.v.) is a peculiar feature of great Ds., and is largely the cause of the tales of genii and evil spirits prevalent among D. peoples. Absolute lack of vegetation is rare, but the plants grow very scantily, and are specially adapted to D. conditions, being mainly of the spinifex family and the prickly variety of the cactus, whose glazed surface retains such moisture as it obtains from the soil. *Anima*' life is similarly restricted, the camel being the only beast of burden able to withstand D. conditions. Where natural springs are found the surrounding land becomes a marvel of fertility, and an oasis (q.v.) settlement grows up, while the rivs., such as the Nile, are used for the irrigation of wide tracts, and the sinking of artesian wells is frequently practised in the Sahara. *See also Gobi; KALAHARI; SAHARA. See A. McIlarny, Deserts and the Birth of Civilisation, 1932, and The Role of the Deserts, 1934; P. B. Sears, Desert on the March, 1935; and J. Harris, Soil of Desert Vegetation, 1936.*

Desertion, and **Deserters**, intentional abandonment of a post or obligation to which the offender is bound by legal or moral laws: (1) D. in the navy or army is being absent without leave when there is no intention to return, as distinguished from absence without leave from other causes. The practice of deserting from one regiment to another to avoid foreign service or aiding civil power is now designated fraudulent enlistment, as distinguished from D. D. when on active service is punishable with death in all European countries. All who attempt to induce D., or who harbour deserters, are liable to punishment. When D. occurs at other times it is punished with a maximum of two years' imprisonment for the first offence, and a term of penal servitude to be determined by the president of the court martial, for all subsequent

offences. All deserters must be tried by court martial, and when convicted forfeit all prior service and such advantages accrued to them from such service, as well as being liable to serve again for the full term of the forfeited service. (2) D. from the merchant service is punishable with forfeiture of pay, and as directed by the Merchant Shipping Act, 1894. (3) D. of wife or children. A deserted wife, by the law of England, may take proceedings against her husband for a maintenance order if she becomes chargeable to the par. He may be charged as a rogue and vagabond under the Vagrancy Act, 1824. D. without cause for at least three years is a ground for a petition of divorce by husband or wife; and, similarly, either spouse may present a petition for judicial separation. The Summary Jurisdiction (Married Women) Act of 1895 gives her the custody of any children there may be up to the age of sixteen, and provides that the husband shall pay a weekly sum towards their maintenance. In such circumstances the wife may obtain an order to protect such property as she may herself acquire, or already possesses in her own right. In Scotland D. without sufficient cause for four years is ground for a decree of divorce. See DIVORCE; HUSBAND AND WIFE.

Deshoulières, Madame Antoinette Du Ligier de la Garde (1638-91), Fr. poetess, b. at Paris, elected member of the *Académie de la Poésie et de l'Art*, and considered by Voltaire the best of the women poets of France. She was a prominent figure for her beauty and wit at the court of Louis XIV., and was the centre of a circle of the most eminent literary men of her time. She spent her early married life at Brussels, and was imprisoned in the Château de Wilworden for eight months by the gov. (1657) on account of her efforts to secure her husband's pardon. She wrote odes, ballades, madrigals, and idylls, of which only a few of the last have lived. Complete eds. of her works were pub. in 1695 and 1799.

Desiccation (Lat. *desicare*, to dry up), the process of drying or removing water from a substance. This may be done by heating the substance and causing evaporation of the moisture, or by various chemical agents, such as calcium chloride, sulphuric acid, potassium hydrate, which are applied by means of a desiccator. This is a closed vessel in which the substance to be dried is placed, together with the hygroscopic substance which is to dry it. Vacuum D. is a quicker process, and is caused by exhausting the air from the desiccator. Currents of dry air also act as desiccators. Certain organisms have the power of undergoing the process of D. and retaining sufficient latent life to enable them to recover, but the longer the period of D. has been, the longer they take to recover; hemetodes, or 'paste-cells,' have been known to revive after nearly twenty years. Rotifers are said to recover after a long period of D., but it is generally considered that it is only the eggs which survive, that the fully developed organism is really dead. Bear-

animalcules, or tardigrades, are also said to survive. Among plants, seeds and spores seem able to resist any period of D.

Design (Lat. *designare*, to mark out), in the fine arts is the drawing or plan which is to act as a guide to the finished representation; the arrangement of the details which are to go to make the whole not only with regard to their artistic completeness, but also with regard to their appropriateness and general utility in the position which they are designed to occupy and the materials from which they are to be constructed. D. does not necessarily mean originality or novelty, more frequently it is the development of old ideas to suit new conditions. In some arts, such as pottery and silver or goldsmiths' work, the form and material are an essential part of the D.; in such arts it is necessary, therefore, that the designer should know the processes, the qualities of the materials, and the practical use of the requisite tools, so that he is not only a designer, but also a practical craftsman. The keen competition for export markets after the Second World War has increased the importance of D. in industry, and in 1948 was held an important exhibition by the Faculty of the Royal Designers for Industry at Burlington House, London.

Design, in law, see COPYRIGHT and TRADE MARKS.

Design, Schools of. The first school of design was opened under the auspices of the Council of the Gov. School of Design at Somerset House in 1837. On the re-organisation of the schools in 1852, the three main objects in view were: (1) The promotion of elementary knowledge of drawing and modelling; (2) special instruction in the knowledge and practice of ornamental art; and (3) the practical application of such knowledge to the improvement of manufactures. In 1857 the central or national art training schools were removed to S. Kensington, where they have since remained. Similar S. of D. grew up in the large prov. tns. Thus as early as 1840 state grants were given to Manchester, Birmingham, Glasgow, etc., to assist them in the erection of such schools. Later new technical schools were estab. throughout the country, where enamelling, metal repoussé, wood-carving, and other artistic handicrafts were taught, as well as drawing and the laws of ornament. Since the Education Act of 1902 the art schools in most tns. have been taken out of the hands of private committees, and are now managed by the municipalities with moneys derived from the local rates. The Central School of Arts and Crafts in Southampton Row (estab. by the L.G.C. in 1896) and the Leicester School of Art may be taken as types of the many modern estab. where art is taught in strict relation to industrial requirements. See also INDUSTRIAL DESIGN, COUNCIL OF.

Desio, tn. of Italy, in the prov. of Lombardy, situated about 10 m. N. of Milan. It cultivates silk and is the bp. of Pope Pius XI.

Desirade, is. belonging to the Fr. W. Indies, situated 4 m. E. of Guadeloupe,

and having an area of 10 sq. m. Fishing is the chief industry. D. was the first is. discovered by Columbus on his second journey. Pop. 1400.

Desire is used in psychology of all instances where the subject is stirred to action not by percepts—that is, by signs of the presence of the objects of pleasure—but rather by imagination or ideas. D. in man corresponds to appetite in animals, and may be defined, according to Spinoza, as 'appetite with the consciousness of it.' But 'whether a man be conscious of his appetite or not, the appetite remains one and the same thing.' In ordinary speech it is customary to speak of the D. of tangible things as also of the D. of abstractions, such as of wealth or truth. Intensity of D. depends on the force of the impulse to action, and not on the degree of delight which is expected to follow the fulfilment of that D.

Deslys, Gaby (c. 1884–1920), Fr. music-hall comedienne and dancer, was well known in Paris before her first appearance in London—viz. at the Gaiety Theatre, Sept. 1906. Till 1915 she was a great favourite with the London public, alike for her personal beauty and for the dazzling nature of her costumes. Besides her prin. business, she also took part in light opera and farce. She d. in Paris. She left a life interest in her fortune of £400,000 to her mother and sister; after their deaths it was to go to the poor of Marseilles.

Desmids (Gk. *δεσμός*, bond) constitute a large genus of fresh-water algae which bear considerable resemblance to diatoms, but differ from them in being bright green in colour and having the cell-wall composed of cellulose instead of silica.

Des Moines: 1. Riv. of Iowa, U.S.A. Rising in the S.W. of Minnesota, it traverses Iowa with a south-easterly course, and finally joins the Mississippi below Keokuk. Its drainage area is some 14,650 sq. m., whilst its total length is 550 m. 2. Cap. of Iowa, U.S.A., at the mouth of the Racoon R., on the Des Moines R., contains the Iowa state Capitol building on a hill, with a fine view of the city; Fort Des Moines, the largest U.S. cavalry post; the city hall; court house and coliseum; Des Moines Univ., belonging to the Baptist Bible Union of N. America, and the Drake Univ. of the Disciples of Christ. There are 870 ac. of parks. The ann. state fair is attended by more than 400,000 persons. There is a large trade in corn and coal, also manufs. of meat products, clothing, furniture, agric. implements, and much printing of newspapers and journals. It is under a commission form of government. The pop. has increased from 3965 in 1860 to 159,800 in 1910.

Desmond, Earls of, Irish family who exercised considerable influence over the S.W. of Ireland. Beginning with Maurice Fitzgerald (d. 1356) the line came to an end in Gerald Fitzgerald, who was murdered finally in his retreat among the Kerry Mts. (1583), his place of hiding having been betrayed to the Eng. This Fitzgerald, the fifteenth of the title, had

sacked Youghal and murdered the inhab. as a direct challenge to Elizabeth's Gov. Consequently he was proclaimed a traitor, and spent the last two years of his life wandering miserably from place to place.

Desmoulins, Lucie Simplicie Camille Benoit (1780–94), Fr. revolutionist and journalist, b. at Guise, Aisne, came into notice after his harangue to the populace on July 12, 1789. 'To arms!' he cried; 'this dismissal (i.e. that of Necker) is the tocsin of the St. Bartholomew of the patriots.' The mob, after hearing the address, rushed out in thousands to seize arms: two days afterwards the Bastille fell. Nevertheless a stuttering speech drove D. to write his inflammatory addresses. His pamphlets entitled *La Philosophie du peuple français* (1788), *La France libre* (1789), and the series that subsequently appeared in *Les Révolutions de France et de Brabant* (1789–91) contain the germs of Socialism, whilst at the time their rapid dissemination caused the violent doctrines contained therein largely to control the trend of contemporary events. Associated first with Mirabeau, and on his death with Danton, D. was present with the infuriated people who stormed the Tuilleries (Aug. 1793), and was largely responsible for the downfall and ruthless massacres of the Girondists, for under the inspiration of the dictator, Robespierre (who had been his school friend), he had pub. his *Histoire des Brissolins* (1793), which contained denunciations of the Girondist leader, Brissot. After the Hébertistes had also been dispatched, a revulsion against such wholesale carnage seized D., the result being the pub. of *Le Vieux Cordelier* (1794). Herein he advocated a fresh policy, this time one of forbearance and clemency, in which he was abetted by Danton and Laëroix, but his exuberant fancy and irresistible delight in Aristophanic humour caused him to represent the great Robespierre in a ridiculous light. The latter, realising the personal danger of such an attack, suffered the Committee of Public Safety to condemn D. with the still nobler Danton to the guillotine in April 1794. A few days later Lucie Duplessis, his young and loving wife, in spite of her hold over the dictator, passed bravely in the tumbril to her death. See R. Arnaud, *La Vie turbulente de Camille Desmoulins*, 1928.

Desna, riv. of the R.S.F.S.U., which rises in the region of Smolensk. It flows S.E. to Briansk, then S.W. until it joins the Dnieper. Its prin. tribs. are the Seim and the Snov, and the riv. is navigable almost throughout its course of 350 m.

Desolation Island, see KERUELEN LAND.

Desor, Pierre Jean Edouard (1811–82), Swiss geologist who climbed the Jungfrau in 1841. The results of his research into Jurassic echinoderms were pub. in his *Synopsis des échinodermes fossiles* (1858) and *Echinologie helvétique* (1868–73), for the latter of which he collaborated with P. de Loriol. His *Aus Sahara* (1865) contains his inquiry into the physical phenomena of that desert, whilst his investigations into the anct. lake habitations of Switzerland form a contribution to paleontology.

De Soto, Fernando, *see* SOTO.

De Soto, tn. of Jefferson co., Missouri, U.S.A. It is situated on Joachim Creek, and has railroad shops, manufacturing of plate glass, shoes, and cloth. Pop. 5100.

Despard, Mrs. Charlotte French (1844-1939), one of the prin. leaders of the women's suffrage movement, especially in its militant aspect. Was much influenced by the works of Shelley, and often said that, as a result of reading his *Revolt of Islam* she became a rebel. In the militant days she was twice imprisoned for actions in connection with this movement. Her reforming activities were by no means confined to the women's movement. She laboured as a poor law guardian and a Socialist orator, and for a time lived at Nine Elms. She was as well known among the poor of Dublin. Though a sister to the late Earl Ypres, she was an extreme pacifist during the First World War. In 1919 she stood for Parliament at Battersea. After the war she went to live in Dublin, where her support of Mr. de Valera, both before the treaty of 1922 and in the ensuing civil war, brought her into conflict with the authorities. In 1926, at the age of eighty-two, Mrs. D. marched from the Embankment to Hyde Park in a procession of women representing the various professions to demand equality of franchise; and with the royal assent to the Bill in 1923 she saw her greatest ambition realised.

Despard, Edward Marcus (1751-1803), Irish conspirator, spent eighteen years in military service in the W. Indies, and later as superintendent of Yucatan. Recalled on trivial charges and found innocent even of these (1792), he was, notwithstanding, imprisoned for two years. He was finally beheaded because of his share in a plot to assassinate the king.

Despeisis Silk, *see* ARTIFICIAL SILK.

Despencer, Baron de, *see* DASHWOOD, SIR FRANCIS.

D'Espercy, Louis Félix Marie François Franchet, *see* FRANCHET D'ESPERET.

Des Fériers, Bonaventure *see* PÉRIERS.

Despotism, in modern application, the oppressive and sometimes illegal rule of one man; the reverse of democracy. The name, like tyrant, is of Gk. origin and had nothing of its present significance. The title despot was given to the master of a household of slaves; then to the absolute ruler of E. countries with whom the Gks. came in contact. Later it came to be an honorary title given to princes in the Byzantine empire, and it is still employed in something of its old sense as a mode of addressing a bishop in the Gk. Church. The beginning of its present use was the employment, as in the case of tyrant, of the word to describe a ruler who had no right to be the ruler although his actual method of government may have been excellent and beneficial.

Despoto Dagb, *see* KHODOPH MOUNTAINS.

Despréaux, Nicolas Boileau, *see* BOILEAU-DESPRÉAUX.

Desquamation, shedding of the epithelium or surface skin, which takes place after certain diseases such as scarlet fever. It is likely that these epithelium

scales are a source of infection; thus the patient is quarantined until the peeling of the skin is complete. A high temp. sometimes causes the skin to come off in large flakes.

Dessalines, Jean Jacques (1758-1806), Negro emperor, b. in Guinea, Africa, and carried to Haiti as a slave. In the insurrection of 1791 he assumed the name of his master, a Fr. planter, and fought as a lieutenant under Toussaint l'Ouverture. After submitting to France he was made governor of the S. part of the is., but began the war anew, defeated the Fr. at the battle of St. Marc, and after unspeakable cruelties drove them from the is., 1803. Haiti declared itself independent in 1804, and D. was elected governor, and in the following year emperor under the title of Jean Jacques I. His tyranny and cruelty soon alienated his supporters, and in 1806, while trying to suppress a revolt, he was murdered by Pétion and Christophe, the latter of whom succeeded him.

Dessau, cap. of the former duchy and free state of Anhalt, Germany, on the l. b. of the Mulde, 70 m. S.W. of Berlin. Among the chief buildings are the former ducal palace (1748), with a valuable library and picture gallery and standing in beautiful grounds; the tn. hall (1899-1900), sev. picture galleries, and the Schlosskirche. The fine W. wing of the Schloss dates from 1540. The tn. has monuments to Leopold, prince of Anhalt-D. (1676-1747), and to the philosopher, Moses Mendelssohn (b. here in 1729). It was also the bp. in 1823 of Max Müller, the orientalist and philologist, who d. at Oxford, 1900. D. is noted for manufs. of machinery, chocolate, gas-cooking, and heating apparatus and chemicals, and a good trade in corn and garden produce. Aircraft factories were erected in the neighbourhood of the tn., which became an objective of the allied air offensive in 1944, during the Second World War. The tn. was captured by the U.S. First Army on April 21, 1945. Pop. 91,400.

Dessuk, a tn. of Egypt, on the Nile, 12 m. N.E. of Damanhur, has a Muslim high school with 250 students. About 7 m. N. are the ruins of the anc. Egyptian cap., Buto.

De Staël, Madame, *see* STAËL.

Desterro, *see* FLORIANOPOLIS.

Destouches, Philippe (1680-1754), Fr. dramatist, b. at Tours. His real name was Néricault. In 1699 he became secretary to the Fr. ambas. in Switzerland, and wrote during the time *Le Curieux impertinent* (1710); *L'Ingrat* (1712); *L'Irrésolu* (1713); and *Le Médisant* (1715). From 1716 to 1722 he was secretary to the embassy in London. On his return to France he was elected to the academy, 1723, and subsequently produced *Le Philosophe Marié* (1727) and his masterpiece *Le Glorieux* (1732), a picture of the struggle between the old nobility and the wealthy bourgeois. Like Molière, he wished to revive the comedy of character, but in style he rather followed Boileau-Despréaux; his later comedies were spoilt by his carrying the moralising tendency to extremes.

Destroyer, Torpedo Boat, small, fast, unarmoured warship heavily armed with torpedo tubes and guns up to 4.7 in. This class of vessel was developed to supersede the 'torpedo gunboat' or 'torpedo catcher', which in turn had been built to destroy torpedo boats. The destroyer acts in flotillas and her duties are to sink the destroyers of the enemy by gunfire, torpedo the larger enemy ships, protect her own battle fleet from torpedo attack, and set up smoke-screens. During the 1911-18 and 1939-45 wars destroyers were also used for escorting convoys of merchant shipping, combating the submarines by means of explosive depth-charges, and as minelayers. The first Brit. destroyer was built by Messrs. Yarrow in 1893 and named *Hawock*. She was much lighter and smaller than the 'catchers' she was replacing, but had relatively great length with a low free-board and was equipped with high-speed engines capable of developing 3500 brake horse-power which enabled a speed of 26½ knots to be attained. The great advance in speed of this vessel and her sister ships over the existing torpedo boats was due mainly to the alteration in lines, small draught, high engine power, and reduction in weight brought about by using thinner plates—in some cases they were only ½ in. thick—and cutting out armour plating. Landmarks in the design of destroyers were the introduction of the water-tube boiler, replacement of reciprocating engines by steam-turbines, and the use of oil fuel instead of coal. Torpedo tubes used to be rigidly fixed in the bows, but as the speed of the torpedo was improved, these had to be abolished because, after firing, the destroyer at first overran the torpedo, which soon gathered way and hit the parent ship behind. There are a considerable number of classes of D. in the Royal Navy. Their names include 'Gallant', 'Daring', and 'Weapon', three classes for which ships were in course of construction at the end of the Second World War, 'C', 'Battle', 'Zambesi', 'Wagon', 'Valentine', 'Ulster', 'Trowbridge', 'Saumarez', 'Rotherham', 'Onslow', 'Hunt', 'Blankney', 'Tribal', 'Intrepid', and others. A vessel of the 'C' class (*Cesar*, *Chequers*, *Comet*, etc.), may be taken as an example of a typical modern D. Details are: 362½ ft. in length, and 35½ ft. beam, 1710 tons displacement, speed 34 knots (capable of 38), four 4.5-in. guns, six anti-aircraft guns (four of 40 mm. and two of 20 mm.), eight 21-in. torpedo tubes in quadruple mountings. Ds. of the 'Battle' class are larger with 2325 tons displacement and were designed for service in the Pacific in the war against Japan. They have a speed of 36 knots, four 4.5 guns, twelve 40-mm. anti-aircraft guns, and ten 21-in. torpedo tubes. A typical modern D. of the U.S. Navy is that of the 'Allen M. Sumner' class. Its dimensions are 376½ ft. by 40½ ft. with a displacement of 2200 tons and a speed of over 35 knots. Its armament includes six 5-in. guns, twelve 40-mm. anti-aircraft guns, and ten 21-in. torpedo tubes. Larger vessels are those

of the 'Gearing' class which with similar armament have a length of 390½ ft. and a displacement of 2400 tons. The flotilla-leader is a kind of super-destroyer, being larger and more powerfully armed than the others, and acts as flagship to destroyer flotillas.

Destructors, furnaces employed for the destruction of refuse. The disposal of refuse from tins, has presented a problem to the authorities from time immemorial, but with the concentration of pop. reached in modern civilisations the matter became urgent. Such methods of disposal as dumping into the sea are clearly possible only in special circumstances, but the fact that much of the refuse consists of carbonaceous material (e.g. paper, straw, animal and vegetable remains, cluders, etc.) suggested the idea of destroying it by combustion. Destructor - furnaces are commonly erected in series, and, after the refuse has been collected, tins, cans, and pieces of iron are withdrawn magnetically, fine dust is removed, and the residue then fed into the furnaces. High temps. are necessary (about 2000°) for satisfactory destruction, and in some cases the heat evolved is used to produce steam and electricity. Destructors are comparatively expensive to construct and run, but the convenience and cleanliness are worth paying for. Many different types of destructors are in use, e.g. the Heenan type and the Horsfall and Sterling type.

Desuetude, technical word in Scottish law, denoting the revocation of some law, simply through the practice of some usage, quite contrary to the terms of the law, which has received its sanction through a general consensus of opinion, and not through any legal enactment. Thus when a man was charged in 1887 with opening a pie and lemonade shop on Sunday he set up a plea of D. as regards the law of 1661 against Sabbath profanation. In this particular case the Act of 1661 was held not to have 'gone into D.' In English jurisprudence, a statute never lapses 'by desuetude', but can become inoperative only by repeal.

Desvaulsiaceae, name formerly applied to monocotyledonous plants of the order Centropetalaceae. The species are small, sedge-like herbs of no known utility found in the southern hemisphere.

Desvres, tn. in the Pas-de-Calais dept. of France, 10 m. E.S.E. of Boulogne with tanneries and porcelain manuf. Pop. 5000.

De Tabley, John Byrne Leicester Warren, Baron (1835-95), Eng. poet, educated at Eton and Christ Church, Oxford. Between 1859 and 1865 he pub. seven volumes of verse, remarkable for their grace and refinement of feeling, but his *Philoctetes* (1866), which won the admiration of Gladstone and Browning, first gave full illustration to his fine classical culture. His careful drama entitled *The Soldier of Fortune* (1876) met with a cold reception; a selection of *Poems Dramatic and Lyrical* (1893), proved that his poetical gifts had not been impaired by his life as a recluse. De T. was also an excellent amateur in botany and numismatics, and his work on the flora of Cheshire was pub.

in 1899, with a memoir by Sir M. G. Duff.

Detachment, in its military sense, refers to a small number of infantry or cavalry despatched from the main army, brigade, battalion, company, or whatever division it may be, for the performance of some particular duty. In naval terminology the word is similarly used to denote the dismissal from the fleet or squadron of two or more vessels on a special service. A 'gun detachment' means the number of artillery soldiers told off to take care of a single gun.

Detaille, Jean-Baptiste Edouard (1848-1912), Fr. painter, who was a pupil of Meissonier, his first picture exhibited in the Salon being 'A Corner of Meissonier's Studio' (1867). His finest pictures are undoubtedly his realistic paintings of military life, either of the scenes from contemporary wars, such as his 'En reconnaissance' (1875), 'Le Régiment qui passe' (1876), and his 'Salut aux blessés' (1877), which represent episodes in the Franco-Prussian campaigns, or from the Napoleonic battles such as his 'Sortie de la garnison de Huningue en 1815,' and his representations of Napoleon in Egypt (1878), and of the engagement between Cossacks and the Imperial Guard in 1814 (1870). His best known portraits are of the Prince of Wales, Duke of Connaught, and Emperor of Russia (1898), whilst 'Le Réve' (1888) and 'Les Victimes du devoir' are two of his most famous pictures. In 1898 D. was elected a member of the Fr. Institute, and was the holder of many foreign honours and decorations.

Detective, see under POLICE.

Detective Story, The, was originated by the genius of the Amer., Edgar Allan Poe, whose *The Murders in the Rue Morgue* (1841) and *The Purloined Letter* (1845) have rarely, if ever, been surpassed in brilliance of analysis and invention. Poe was soon followed by the Fr. writer, Emile Gaboriau, whose *L'Affaire Lerouge* (1866) and *Le Dossier 113* (1867), etc., were eagerly read. He was followed among his countrymen by Bolsgebey, author of *Le Forçat Colonel* (1872), Gaston Leroux and Maurice Leblanc, but apart from these writers and the later Belgian author Georges Simenon, the development of the detective story has been mainly in the hands of the many authors in this genre in Great Britain and America. In England the vogue may be said to have begun as a result of the stories by Sir Arthur Conan Doyle who took up and extended the conventions of the detective story established by Poe—the apparently insoluble crime, the clues misleading the police, the quicker-witted detective and his admiring follower who tells the tale. Doyle created the character of Sherlock Holmes, whose name became a synonym in many languages for detective, and the first of the several books of Sherlock Holmes' *Adventures*, *Memoirs*, etc., was *The Study in Scarlet* (1887). Doyle also established the scientific side of detection in fiction which has been developed by many subsequent writers, notable among whom is Agatha Christie. G. K. Chesterton (q.v.) in his

Father Brown series used the D.S. for the discussion of religious ideas.

Deterioration, Physical, see PHYSICAL DETERIORATION.

Determinants. In mathematics, a system of symbols whereby many calculations are facilitated. Consider two homogeneous linear equations, $a_1x + b_1y = 0$; $a_2x + b_2y = 0$. By multiplying the first by b_2 and the second by b_1 , and subtracting, we get $x(a_1b_2 - a_2b_1) = 0$, whence $a_1b_2 - a_2b_1 = 0$. This may be written $\begin{vmatrix} a_1 & a_2 \\ b_1 & b_2 \end{vmatrix} = 0$, and the expression on the left is called a D. of the second order, consisting of two rows and two columns. The value is not altered by changing rows into columns or vice versa, thus $\begin{vmatrix} a_1 & a_2 \\ b_1 & b_2 \end{vmatrix} = a_1b_2 - a_2b_1$. Interchanging two rows of columns changes the sign; thus $\begin{vmatrix} a_2 & a_1 \\ b_2 & b_1 \end{vmatrix} = a_2b_1 - a_1b_2$. Consider three homogeneous linear equations, $a_1x + b_1y + c_1z = 0$; $a_2x + b_2y + c_2z = 0$; $a_3x + b_3y + c_3z = 0$. From the second and third we get by the rule of cross-multiplication

$$\begin{vmatrix} a_2 & a_3 \\ b_2 & b_3 \end{vmatrix} x - \begin{vmatrix} a_2 & a_3 \\ c_2 & c_3 \end{vmatrix} y + \begin{vmatrix} b_2 & b_3 \\ c_2 & c_3 \end{vmatrix} z = 0$$

This may be written $\begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix} = 0$ and

the expression on the left is known as a D. of the third order, consisting of three rows and three columns. It is to be noted that the coefficient of a_1 , b_1 , or c_1 is the D. of the second order obtained by omitting the row and the column containing that constituent in the D. of the third order. Some of the properties of D. are: if two adjacent columns or rows are interchanged, the sign of the D. is changed without other alteration in value; if two rows or columns are identical the D. = 0; if each constituent in a row or column is multiplied by the same factor, the D. is multiplied by that factor. See T. Muir, *The Theory of Determinants in the Historical Order of Development*, 1923, and *Contributions to the History of Determinants*, 1930.

Determinism (from Lat. *determinare*, to prescribe), the name applied to the doctrine that man's every action is directly dependent either on his environment or on his impulses and motives, the dependence being so mathematical that his behaviour could in every case be predicted were it possible to appreciate the exact nature and relative force of the external and internal impulses which drive him to behave as he does. It is therefore a doctrine in direct opposition to the doctrine of Free Will, taught in Christian ethics, and known to psychologists under the names of Indeterminism, Voluntarism, and Indifferentism, by which it is held that man has complete moral freedom to choose between different courses of action. 'Hard' D. bears a very

close resemblance to necessitarianism, and the old fatalistic beliefs, whilst 'soft' D. accounts for 'remorse' by allowing that in some cases it is really open to a man to make a deliberate choice. The theory of evolution, by which man is regarded as a mere link in the 'chain of causal development,' as owing his motives, appetites, and aversions, and, indeed, his whole mental outlook largely to inherited tendency and environment, lends support to the determinists.

Detinue, a term in law for the action brought for the recovery of goods, or their value, with damages for detaining them if they cannot be recovered, by the real owner of the goods against whoever is in actual possession of the same.

Detmold, cap. of Land Lippe, Germany, at the foot of the slopes of the Teutoburger Forest, 25 m. S. of Minden by rail. The chief buildings are the palace of the reigning prince (1550), a natural hist. museum, and a theatre. It has a chemical industry. There are many visitors in summer attracted by the beauty of the Teutoburger Wald. The poet F. Freiligrath (1810-70) and the dramatist Grabbe (1801-36) were both natives of D. On a hill about 3 m. S.W. of the town is a colossal statue of Arminius (Hermann), chief of the Cherusci, who defeated the Rom. general, Varus, here in A.D. 9. Pop. 17,500.

De Tocqueville, Charles Alexis Henri Maurice Clérét, *see* TOCQUEVILLE.

D.D.T., *see* DICHLORODIPHENYLTRICHLOROETHANE.

Detonator, small supply of an easily-exploded substance used to discharge the main explosive constituent of a cartridge, shell, or mine. A substance formerly in general use for this purpose is mercury fulminate, which in British service ammunition was mixed with potassium chlorate and antimony sulphide in proportions depending on whether the D. was to be exploded by percussion or by a time fuse. The fulminate when exploded produces gases at a high temperature and pressure, conditions under which dynamite and other comparatively inert explosives are effectively discharged. Mercury fulminate has now been largely superseded by such improved detonators as lead azide, PbN₂. The term D. is also applied to the small metal cases fixed on railway lines to serve as fog-signals. *See also* SIGNALS.

Detritus, a geological term denoting gravel, sand, or other water-worn matter, and angular, or subangular débris, which have accumulated in consequence of the disintegration of rocks.

Detroit, fourth largest city in the U.S.A., is in Michigan, on the R. Detroit, 18 m. above Lake Erie and 284 m. E.N.E. of Chicago. It is connected with Windsor in Canada (on the opposite bank of the riv.) by bridge and tunnel. It is built on the slope of the riv. bank, with wide tree-shaded avenues. Among the chief buildings are the City Hall (1868-71), the Co. Court House, the churches of St John's Episcopal and First Congregational, the Rom. Catholic churches of St. Anne and

Sacred Heart of Mary, the Rom. Catholic College (1877), and many huge skyscrapers. D. is an important railway centre, and carries on an enormous commercial traffic by riv. and lakes. D. was estab. as a trading post in 1701 by a Fr. fur trader. In 1760 it was taken by the Brit. and continued as a military post until it was surrendered to the U.S.A. in 1796. D. has been the home of the motor car since the early days of their manufacture. The Ford Motor Co. was incorporated on June 16, 1903. The largest factories of automobile parts are also at D. D. is one of the chief centres of the manuf. of medical and pharmaceutical preparations, which began in 1856 in a single room 12 ft. square. Other important industries are varnish, paints, oil, shipbuilding, aircraft, railway works, lumber yards, machine shops, brick-making, tobacco, furniture, tyres, tinned meat, etc. The College of Medicine has 250 students. The University of D. was first so called in 1911. The pop. was 79,577 in 1870, 466,000 in 1910, 993,680 in 1920, and estimated in 1945 to be 1,680,000. *See* C. E. Catlin, *The Story of Detroit*, 1926; W. A. Simonds, *Henry Ford and Greenfield Village*, 1938; F. Barcus, *All Around Detroit*, 1939.

Detroit, University of, an institution for higher education conducted by Jesuit fathers under the auspices of the Rom. Catholic Church. Over 3000 students attend the various courses, which embrace arts and sciences, commerce and finance, civil engineering and law.

Detskoe Selo. *See* PUSHKIN.

Dettingen, vil. of Bavaria, Germany, situated in Lower Franconia, on the Main, 8 m. N.W. of Aschaffenburg. It is noted for a victory which was won in 1743 by the Brit., Ger., and Austrian forces under George II. over the Fr., under Marshal Noailles. It was the last battle in which an Eng. monarch took part. Pop. 1500.

Detva, or Gyetva, mkt. tn. of Hungary, situated about 18 m. E. of Alsóh. Pop. 7500.

Deucalion, in Gk. mythology, the son of Prometheus. When Zeus, in anger at the world's wickedness, resolved to destroy all mankind by a flood, D. built a boat which, after floating for nine days on the water, rested on the top of Parnassus. Having inquired of the oracle what they were to do next, they were ordered to throw stones behind them; those which D. threw became men, and those thrown by Pyrrha, his wife, became women. *See* Ovid, *Metam.* i.

Deule, riv. in the dept. Pas-de-Calais and Nord, France. It is a trib. of the Lys, which itself unites with the Scheldt in Belgium. Rising near Carency, it flows past Lille, where it once filled the moat of the pentagonal citadel, and Quénou, joining the main riv. near Deulomont.

Duarte, tn. of E. Flanders, Belgium. Centre of the picturesque dist. of the lower Lys. Splendid landscapes and pastures. Windmills, historical castle in Renaissance style. Pop. 1000.

Deus Nogueira Ramos, João de (1830-96), Portuguese poet who probably appeals to a greater number of his countrymen than any other native poet with the exception of Camões and Garrett. But for his ardent admirers, none of his poems would have reached the public, for he was indifferent to fame and a careless, spasmodic composer. Posterity will treasure his spontaneous and emotional lyrical outpourings such as his *Rachel*, *Marina*, *Descalça*, and above all his exquisite *Ramo de Flores* (1869). The *Campo de Flores* (1893) is the best ed. of his poems. By turns D.'s writing is imitative, idyllic, pessimistic, and devout, and notable for its intense purity and elemental simplicity.

Deuteronomy, the name of the fifth book of the Pentateuch, which from the seventeenth century onwards was one of the great battle-grounds of biblical criticism. Before that time, it was universally held to be of Mosaic authorship, but it is now often regarded as a gradual compilation, of which the greater part dates from the reign of Manassah. An earlier form was discovered in the reign of Josiah, and exercised a great influence on that monarch. The work sub-divides greatly. Chaps. i.-iv. and v.-xl. give two introductory exhortations, the former being largely historical. After this come a variety of exhortations and historical accounts interspersed with poems. The high moral tone of the book is shown by the fact that of a quotation from it Christ said: 'On these words hang all the law and the prophets,' and that from D. were taken all Christ's answers to the Tempter in the wilderness. The name of the book is taken from the Septuagint trans. of the words 'this law' in chap. xvii. 18. See S. R. Driver, *A Critical and Exegetical Commentary on Deuteronomy*, 1895; J. Finn, *The Unity of the Pentateuch*, 1917.

Deutsch, Immanuel Oscar Menahem (1829-73), Ger. Heb. scholar, studied Heb. and Chaldean literature under his uncle, a rabbi, and in 1855 became an assistant in the library of the Brit. Museum. His fame grew out of his brilliant article on 'The Talmud,' which appeared in the *Quarterly Review* of 1867. Besides contributing to Smith's biblical dictionaries, he was an authority on Phœnician antiquities.

Deutshbrod, see NEMEČY-BROD.

Deutsche Bank is one of the big banks in Germany. It was founded in 1870 with its chief office in Berlin. Its main purpose was to provide a ready assistance in all financial matters to Ger. commercial men. The D. B. did good service in Germany's rapid development in industry and commerce which took place during the last two decades of the nineteenth century and continued up to the outbreak of the First World War in 1914. In addition to branches throughout the German Reich, it had others in Europe, particularly in the S.E. The D. B. amalgamated with the Disconto-Gesellschaft (founded 1856) in 1920, the combined share cap. amounting to 285 million, with reserves of 160 million marks. In 1933 the Dresdner and Commerzund Privat-

bank were also assimilated, and further widening of its network of branches took place in 1938. At the end of 1944 the balance of the D. B. exceeded 8,700 million marks.

Deutsch-Eylau, see EYLAU, DEUTSCH.

Deutsch-Krone, tn. of Prussia, Germany, situated 15 m. N.W. of Schneidemühl, between the lakes Radau and Arers. There is trade in wood and cattle. The tn. is at an important road junction and was an objective in the Soviet offensive at the end of the Second World War. It was captured by the Red Army on Feb. 11, 1945. Pop. 11,000.

Deutz, tn. of Rhineland, Germany, situated on the r. b. of the Rhine, opposite Cologne, with which it was incorporated in 1888.

Deutzia genus of Saxifragaceae, grows wild in the N. of India, China, and Japan. *D. scabra*, *D. gracilis*, and *D. crenata* are cultivated in Britain, and the first-named is remarkable for its silicles stellate hairs.

Deuxponts, see ZWEIFBÜCKEN.

Deux Sèvres, see SÈVRES, DEUX.

Deva, tn. in Rumania, on the Maros, 82 m. E. by N. of Fehesvar. It has picturesque ruins. Pop. 8700.

De Valera, Eamon (b. 1882), Irish patriot and statesman, b. in New York City, his father being Spanish and his mother Irish. He was educated in Ireland at Blackrock College and the Royal Univ. at Dublin. He gained several scholastic degrees and taught mathematics, Fr. and Lat. in various colleges and educational establs. Whilst engaged in his educational pursuits his political sympathies were being nurtured in the atmosphere of Sinn Féin, but though an enthusiast, he did not become a prominent Sinn Féiner until the 1916 Easter Revolution, during which he commanded a party of insurgents. He was taken prisoner and sentenced to death, but this was commuted to penal servitude for life. At the general amnesty in 1917 he was released, and again plunged into political affairs, becoming the directing head of the Sinn Féin movement. He gained great prestige on being elected member of parliament for East Clare and was elected president of the 'Irish Republic' in Oct. 1917. He was re-arrested in May 1918 and confined in Lincoln prison, from which he escaped or was allowed to escape in Feb. 1919, to U.S.A. In 1921 he returned to Ireland, and was one of the negotiators of the treaty which brought the Irish Free State into being, although he repudiated the treaty. He revolted against the Irish Free State, and was captured in Aug. 1923, to be released in July 1924, when he again entered the political arena. In Aug. 1927 he took the oath of allegiance in Parliament, and led the Flanna Fail Opposition to Cosgrave's party in the 'all. In the elections of 1933, however, he secured a sound majority over Cosgrave, and again became president of the executive council (i.e. Prime Minister). He met with some opposition in the country from O'Duffy's Blueshirt movement, which, however, he reduced to insignificance by the speech he made in the Dail

when the Wearing of Uniforms (Restriction) Bill became law. He then went ahead with his programme of social and agricultural reform. Production and wages rose, and the numbers employed increased. The Senate as a reactionary body was abolished, and the Governor-Generalship was slowly whittled away until in 1937 it disappeared. D. played the leading part in framing the present Constitution of Eire by which the country became a sovereign independent state, owing no obligation to the Eng. Crown except in respect of the appointment of foreign representatives and the signing of

in S. Ireland or Eire, but his efforts were checked by the outbreak of I.R.A. terrorism, although this was denounced by D. With the beginning of the Second World War D. brought the army up to war strength and A.R.P. services were started. He had, however, the support of the country behind him in declaring the neutrality of Eire—a position which he maintained throughout the war.

In Feb. 1948, following a general election, his party (Fianna Fail) was defeated by a combination of Fine Gael, Farmers' and other parties and he was succeeded as Taoiseach (Prime Minister) by John A. Costello. He then went to America to publicise his campaign against partition (see EIRE).

Devanagari, or Nagari, called also the 'town-script,' is that form of the Sanskrit alphabet which is in general use among Hindu scholars, and appears in all works on Sanskrit by Europeans. It was possibly introduced to India about 800 B.C. by traders from Mesopotamia. It is at least probable, in view of the similarity of certain letters, that there is some kinship between the Nagari and the Phœnician alphabet, which in its turn may have been derived from Egyptian hieroglyphics. The Indo-Aryan vernaculars, Gujarati, Rajasthani, and Bihari, are usually written in Nagari characters.

Devant, David (1868-1941), Eng. illusionist, b. in London, son of an artist in poor circumstances. Worked as a page boy and telephone operator, but spent much of his time in the study of conjuring. Began by touring in the provinces and, in 1893, appeared with Maskelyne at the old Egyptian Hall, from which time his reputation was established. Became Maskelyne's partner in 1905 and continued to perform at St. George's Hall till attacked by a nervous breakdown at the beginning of the First World War. Not only the leading conjurer of his day, but sometimes regarded as the foremost magician of all time. Much curious information about the tricks and illusions he practised may be obtained from his books *My Magic Life* (1931) and *Secrets of My Magic* (1936).

Devaprayaga, or Deoprayag, vil., 2266 ft. above the sea-level, at the confluence of the Alaknanda and Bhagirathi, in the dist. of Garwal, N.W. Provinces, India. The two rivers form the Ganges below Deoprayag. Here is the famous temple of Rama Chandra, the resort of Hindu pilgrims.

Devavanja, tn. and com. of Hungary, 45 m. S.W. of Debreczon. Pop. 14,000.

Development. In music, whether referred to a phrase or more especially to a subject, denotes its fulfilment, or unfolding of all the qualities it contains by variation in harmony, rhythm, tonality, and by the building, as it were, of more or less elaborate structures upon the original melody. Signifies in geometry the unrolling of any conical or cylindrical surface, and in general the smoothing out into a plane surface of any curved one. In mathematics it always means the process by which one mathematical term is



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EAMON DE VALERA

International treaties. The so-called 'Economic War' with England of 1932-38 was brought on by D.'s refusal to pay the regular land annuities to the British Gov. This conflict was ended by the London Agreement which D. negotiated with Neville Chamberlain in 1938. The Brit. Gov. accepted £10,000,000 in final settlement of the annuities and Eire gained virtual sovereignty. England surrendered the right to enter or fortify Irish ports. The elections which followed further strengthened D.'s position. The obligation of the Oireachtas to take the oath of allegiance to the Crown was abolished, as also was the right of appeal to the Judicial Committee of the Privy Council. In 1938 D. began to intensify the campaign for the absorption of Ulster

exchanged for another of equal value. D. may also be said to cover the whole subject of investigation in the science of embryology.

Development Commission, a gov. dept. set up under the Development and Road Improvement Funds Acts of 1909 and 1910, for the purpose of administering funds for the development of agriculture, and rural industries, fisheries, land reclamation and harbour maintenance.

Development and Road Improvement Funds Act, 1909, provides for the appointment of Roads Boards with power to construct and maintain new roads and to make advances to co. councils and other highway authorities in respect of the construction of new roads and the improvement of existing roads. Every road constructed by the Board was to be a public highway. The powers are now merged in the ministry of transport. See also **DEVELOPMENT COMMISSION; HIGHWAYS**.

Devenish, is. and par. of N. Ireland situated in Lough Erne, co. Fermanagh. The surface is hilly in parts, and boggy. The soil is very fertile, and good crops are raised. Limestone and sandstone are quarried. Pop. 3000.

Deventer, anct. tn. of Holland in Overijssel, situated on the Yssel, 8 m. N. of Zutphen, and 25 m. N. of Arnhem. It has exactly the appearance of a tn. of the Middle Ages. Part of the prin. church dates from the twelfth century, the crypt of St. Lebuinus is supposed to date from 1040. The Weigh-house is a curious little edifice of 1528. There are many elegant and charming houses and iron foundries and carpet factories. D. was captured from the Spaniards by Prince Maurice of Orange. The artist Terburg, whose pictures are to be found all over Europe, lived at D. and died there in 1681. Pop. 43,900.

Deventer, General Sir Jacob Louis Van (1874-1922), S. African soldier, b. in Orange Free State. He came into prominence as one of General Smuts' lieutenants during the Boer War, particularly in connection with the invasion of Cape Colony. He served on Botha's staff in the campaign in German S.W. Africa, 1914-15. Commanded a mounted brigade at the outset of the campaign against the Gers. in E. Africa and eventually commanded the whole force. After much hard fighting he drove his opponent, General Paul von Lettow-Vorbeck, into Portuguese ter.

De Vere, Sir Aubrey, originally Hunt (1788-1846), Irish poet, educated at Harrow, where Byron and Peel were his schoolmates. A country gentleman, he lived a life of retirement, writing without any care for his public. He took a great interest in public events, and was superior to the common prejudices of his class. His sonnets appeared first in 1842, and were spoken of by Wordsworth as 'the most perfect of our age.' *Julian, the Apostate*, was published in 1822, and *The Duke of Mercia* and several poems in the following year. See memoir by his son Aubrey (q.v.) in D. V.'s *Mary Tudor*, 1884.

De Vere, Aubrey Thomas (1814-1902), poet, was the third son of Sir Aubrey de Vere, of Curragh Chace, Adare, co. Limerick. In 1842 he published *The Waldenses, or the Fall of Iora*, which contained also some exquisite lyrics, and in the following year he issued a companion volume, *The Search after Proserpine, Recollections of Greece, and Other Poems* (1843). Besides poems, he wrote in prose concerning Ireland's wrongs, for while he held no brief for the disruption of the union he was an ardent sympathiser with the distress of the Irish folk. *English Misrule and Irish Misdeeds* (1848) was the principal of these works, *Ireland and Proportional Representation* (1885) the last. Not a great poet, yet at his best, especially when the theme was romantic, rose to a high level. He pub. his *Recollections* in 1897. See W. P. Ward, *Aubrey de Vere, A Memoir*, 1904.

Deveron, or the **Blackwater**, riv. of Scotland, which rises in the mts. of Cabraich at a height of 1850 ft. It is at first merely a mt. torrent, but passing through Aberdeenshire and Banffshire, it gradually becomes broader and slower, until after a course of 60 m. it enters the sea at Banff. Salmon and trout abound in its waters.

Devereux, Robert, Robert, and Walter, see **ESSEX, EARLS OF**.

Devers, Jacob Loucks (b. 1887), Amer. soldier, b. in York, Pa., Sept. 8; graduated at West Point. He became an authority on mechanisation, and in 1939 was chief-of-staff responsible for the defences of Panama. In 1942 he was promoted to Lieutenant-General and was chief of U.S. armoured forces. In 1943 he became Commander of the U.S. Forces in the European theatre of war and later deputy Commander in the Mediterranean theatre. He relinquished this appointment to take command of the Sixth Army Group, consisting of U.S. and Fr. forces, operating in the S. of France and in Alsace.

Devi, or **Durga** (Sanskrit, inaccessible), in Hindu mythology the daughter of Himavat (the Himalayas) and the wife of Shiva. She is depicted with ten armed hands, a kindly face, and attendant lions to suggest the ferocity of her nature. Bloody sacrifices are offered her, whilst her birthday is annually celebrated at the great Bengaleso festival in the sixth Hindu month.

Deviation, see under **COMPASS**.

Devise, see under **HERALDRY**.

Devil (O. Eng. *deofol*, Lat. *diabolus*, from Gk. *δᾱβολος*, slanderer), in Christian theology the great spirit of evil who works in ceaseless antagonism to God. The word is also used for inferior evil spirits under his command. The general evolution of the idea of a single spirit of evil has already been shown in *Demonology* (q.v.), and its development in the O.T. and N.T. will here be shown. The idea appears first in the account of the fall given in Genesis. Here the temptation comes from the serpent, created by God, but most subtle of creatures, whose hostility to God is not clearly stated. The idea of subservience to God is also

shown in such references as 1 Sam. xvi. 14, and 1 Kings xxii. 22, and the conception of Satan (Heb. 'the adversary') is a development of the post-exilic period. Here, though his personality is made more distinct and his opposition to God and his servants is recognised, we still find him regarded as a minister of God. Thus, in Job ii. Satan appears among the sons of God, and asks God's permission to test the virtue of Job. It is this aspect of the tempter that is generally considered in later times. The dualistic idea, which considers Satan as the adversary of God, ruling over a separate kingdom of evil, is largely due to the contact of Jewish with Persian modes of thought. In Tobit iii. Asmodeus appears as the equivalent of Satan, and in Wisdom ii. 24 is identified with the serpent who tempted Eve. The *Book of the Secret of Enoch* further relates the revolt of Satan and his fall from Heaven. In the N.T., the Jewish system is taken for granted. Satan is spoken of under a variety of names, the D. (Heb. ii. 14), the Enemy (Matt. xiii. 39), Beelzebub (Matt. x. 25), the Adversary (1 Pet. v. 8), and in Revelations as the Accuser of the Brethren (xii. 10), the Old Serpent (xx. 2), and the Great Dragon (xii. 9). Jesus distinctly recognises a kingdom of evil spirits, ruled by a prince, whom it is his work to overcome. The common conception in the early Church may be shown by a quotation from A. Harnack's *History of Dogma*: 'the present dominion of evil demons was just as generally presupposed as man's need of redemption, which was regarded as a result of that dominion.' The fathers generally held that Satan had dominion over this present world, though Christ had freed his servants from the Satanic power. Irenaeus in the second century represents this freedom as being gained through Christ's payment of the ransom to Satan, and this idea gained ground, though it was definitely repudiated by Anselm among others. Later liberal Christian thought was inclined to neglect all consideration of the D., and to consider belief in Satan as an inessential part of the faith. For views on the subject the works of Kant, Schleiermacher, Dörner, Martensen, Ritschl, Kaftan, etc., may be consulted. See also *Les Études Carmélitaines: Satan* (Bruges), 1948.

Devil-fish, an opprobrious name applied to various fishes, chiefly belonging to the Myliobatidae, or eagle-ray family. It is also applied to the octopus, which is, of course, not a fish, but a mollusc, and to the anglers (*q.v.*) or sea-devils which have the technical name of *Lophius piscatorius*. Sea-devils have flat and tessellated teeth, broad flat bodies and long, thin, whip-like tails; they are voracious and crush molluscs with their hard teeth. Species of the different genera attain great size.

Deville, Etienne Henri Sainte-Claire, see **SAINTE-CLAIRE**.

Devil's Advocate, see **ADVOCATUS DIA-BOLI**.

Devil's Bridge (Ger. *Teufelsbrücke*): (1) Famous bridge over the Reuss in the canton of Uri, Switzerland, 1½ m. from

the spot where the St. Gothard Pass road comes out on to the Valley of Andermatt. Here the riv. which is 4590 ft. above sea-level, forms a fine waterfall of 100 ft. (2) Hamlet in Cardiganshire, Wales, 10½ m. E.S.E. of Aberystwyth, and also a double bridge over the Mynach, which here runs at the bottom of a gorge, 114 ft. deep, making four falls from 16 ft. to 100 ft. within a m. The upper bridge dates only from 1753, but the lower was built in the eleventh century by the monks of Strata Florida.

Devil's Coach-horse, or **Black Cocktail**, the beetle known less graphically as *Ocypus solens*. This species, which is Brit., is about 1 inch in length, narrow in shape, active in habit, and usually carnivorous in diet.

Devil's Dyke: (1) Anct. earthwork extending from Wood Ditton to Roach in Cambridgeshire, England. It is 18 ft. high, and once formed a boundary between E. Anglia and Mercia. (2) A huge fissure 4½ m. N.W. by N. of Brighton in Sussex, England. It has a railway station and is the object of excursions for tourists from Brighton, there being now a cable way to take passengers across from one side of the chasm to the other.

Devil's Island, French Guiana, see **SALUT, ÎLES DU**.

Devil's Lake, city in N. Dakota, U.S.A., co. seat of Ramsey, seat of the State school for the deaf. Near by is an important wild animal preserve. Pop. 6,200.

De Vinne, Theodore Low (1828-1914), Amer. printer and writer on typography, was b. at Stamford, Connecticut, on Dec. 25, 1828, and was early apprenticed to a printer. At twenty-one he was employed by Francis Hart of New York; became junior partner in 1858, and after Hart's death in 1877 changed the name of the firm to Theo. L. De Vinne and Co. He was part-founder and president of the Grolier Club, whose early pubes. were produced by the De Vinne Press. His work was invariably of the highest quality, the *Century Dictionary* showing his artistry and care. His chief works are *The Invention of Printing* (1876), *The Practice of Typography* (1900-1904), and *Notable Printers of Italy during the Fifteenth Century* (1910).

Devizes, mkt. tn. and municipal bor. of Wiltshire, England, near the Kennet and Avon Canal. The tn. owes its origin to a magnificent castle, of which very few fragments remain, built by Roger, Bishop of Salisbury, about 1132. Round the castle grew up a prosperous tn. which from the time of Henry VIII. till about 1820 was famous for its cloth, and from the time of Edward III. for its wool. The tn., besides its modern castle, contains a remarkable Gothic mkt.-cross; the partly Norman churches of St. John and St. Mary, a museum, and a corn exchange. Its modern industries are the grain trade, tobacco, and snuff works, breweries, and the manuf. of silk and agric. implements. Pop. 8,000.

Devolution: (1) The first war embarked on by Louis XIV. of France with the single object of extending the boundaries of his

kingdom is known as the War of Devolution. When his father-in-law, Philip IV. of Spain, died, Louis, by introducing a civil right of inheritance into politics, claimed Flanders as the possession of his wife, Maria Theresa. (2) Also the name given to the schemes for the administration of Ireland, as enunciated by the Irish Reform Association, formed in 1903.

Devon, riv. of Scotland, which rises in the Ochil Hills at a height of 1800 ft. It is noted for its beautiful scenery, which has been immortalised by Burns. There is a series of remarkable falls, below the Crook of Devon, known as the Devil's Mill. Caldron Linn, and Rumbling Bridge. Trout abound in the riv., and after a course of 33 m., it falls into the Forth at Cambus.

Devon Breed, see under CATTLE.

Devonian system, in geology. The term was first used by Murchison for the greater part of the Paleozoic strata of Devonshire, instead of the older term 'Old Red Sandstone,' because the strata in Devonshire, while being otherwise identical with the 'Old Red Sandstone' of Scotland, Hereford, and S. Wales, and occupying the same position between the Silurian and Carboniferous periods, contain a much more copious and rich fossil fauna and flora. The conditions under which the Old Red Sandstone and the Devonian strata were deposited are so very different, however, that later geologists do not use the terms synonymously. Strata of the D. S. are also found in the Ardennes, Bohemia, and the Ural mts. See OLD RED SANDSTONE.

Devonport (before 1824 called Plymouth Dock), until 1914 parl., municipal, and co. bor., situated on a peninsula formed by the Hamoaze and Stonehouse Pool at the head of Plymouth Sound, and forming with Plymouth and Stonehouse the 'Three Towns.' D. is one of the chief naval and military stations in the Brit. Isles: it owes its origin to the dockyard established here by William III. in 1689. The naval estab. extend nearly 4 m. along the Hamoaze and include, besides the original dockyard, the Keyham steam yard and factory, the gun-wharf, the Gov. House and Admiralty House on Mount Wise, the naval and military barracks and the Royal Naval Engineering College at Keyham. In 1896 fresh extensions were begun at the Keyham Yard, which were opened under the name of Devonport North Yard, by the Prince of Wales in 1907. There is a powder magazine on Drake's Island at the entrance to the Hamoaze (estuary of the Tamar); Mount Edgcumbe on the N. side is guarded by forts, and the harbour is fortified and guarded by warships. D. and Stonehouse were amalgamated with Plymouth in 1914, the three now forming the city of Plymouth, created such on Oct. 18, 1928. Pop. 83,000.

Devonport, Sir Hudson Ewanke Kearley, first Viscount and Baron of Whittington, Bucks (1856-1934), youngest son of George Ewanke Kearley, of Tarrant Gunville, Dorset. He represented Devonport as a Liberal from 1892 to 1910, being

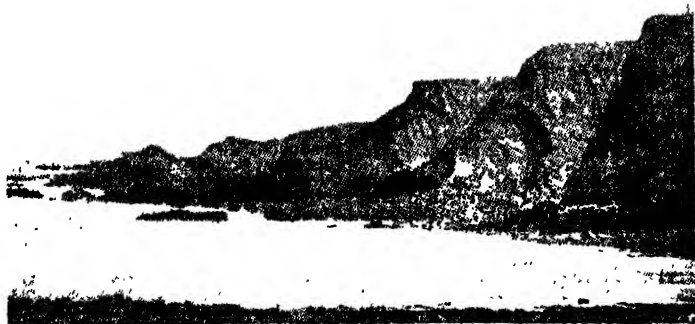
parl. secretary to the board of trade from 1905-8. During the First World War he was food controller (1916-17) and he received his viscountcy in 1917.

Devonshire, Spencer Compton Cavendish, eighth Duke of (1833-1908), Eng. statesman, the eldest son of William Cavendish, second Earl of Burlington, and was known as Lord Cavendish until 1858, when, his father succeeding to the dukedom of Devonshire, he bore the courtesy title of Marquis of Hartington. In 1857 he entered Parliament, as a Palmerstonian Liberal, and in 1874, on the defeat of Gladstone at the general election, he resigned his leadership of the party, and the liberals then chose Hartington in his stead. In 1880, on the defeat of Disraeli, he was invited to form an administration, but Gladstone having returned to the House to take up the matter of the 'Bulgarian atrocities,' he withdrew in favour of his old chief. In 1882 he went to the War Office, and was there during the period of disaster which resulted in the evacuation of the Sudan and the death of Gordon. Owing to his views on Home Rule he declined office when Gladstone again came into power in 1886, and moved the rejection of the Bill, which shortly afterwards was thrown out on the second reading by a majority of ninety. At the general election which followed, the Conservatives and the Liberal-Unionists (as the seceders called themselves) were in a majority, and Lord Salisbury invited Hartington to form a Coalition Ministry, in which he would accept office. This Hartington declined to do, hoping that by some means the Liberals and the Liberal-Unionists might in the near future be able to coalesce. This wish was not fulfilled, and it was not until 1894 that the Duke of Devonshire (as he became in 1891) accepted office in a Conservative Gov. He then became President of the Council under Salisbury, and retained his office under Balfour. In 1904 he resigned, being opposed to the policy of tariff reform, which henceforth became the leading feature in the Conservative programme. He died at Cannes on March 21, 1908. 'The Duke,' as he was called in his later days, wielded great influence in the country, and was one of the most popular figures in the kingdom. People were amused at his lethargic manner, and were delighted to believe the story that he yawned during his maiden speech in the House of Commons, and that thereupon Disraeli remarked to a neighbour, 'That young man will go far.' In private life, he was also popular, and an intimate friend of King Edward VII. In his early days he was fond of hunting, and all his life he was a notable follower of the turf, which was, perhaps, his chief interest outside politics.

Devonshire, Sir Victor Christian William Cavendish, ninth Duke of, (1868-1938), b. May 31; eldest son of third son of seventh duke. Educated Eton, and Trinity College, Cambridge. He entered Parliament at the age of twenty-three as member for W. Derbyshire, a seat that had been held by the Cavendish family for the greater part of two

centuries. Nine years later he was appointed treasurer of the Household, first under Queen Victoria and later under Edward VII. In 1903 he became financial secretary to the Treasury. He lost office when the Liberals gained power in 1906, and it was not until 1915, with the advent of the Coalition gov., that he returned to the gov. as civil lord of the Admiralty. He held that position for only a few months, and from 1916-21 was governor-general of Canada. After the break-up of the Coalition ministry he became, in 1922, colonial secretary and by coming forward with a personal guarantee of £500,000, was largely instrumental in saving the project of the Brit. Empire

orchards. D. is rich in pastures, and is famous for its cattle and dairy produce. The climate is so mild that in some parts the vegetation is of a sub-tropical character, aloes and fig-trees, and even oranges growing in the open. The land is rich in minerals, the tin mines were long important, and copper, lead, iron, and manganese have been all worked, as well as china and terra-cotta clays, granite, marble, limestone and sandstone. Fish abound around the coasts. Apart from the gov. industries at Plymouth, the chief are the lace manuf. at Tiverton and Honiton, woollen goods and serges, boots and shoes, potteries, gloves, and paper-mills. Cider is made all over the co.



THE DEVONSHIRE COAST NORTH OF HARTLAND QUAY

Exhibition at Wembley from abandonment. He retired from public life in 1921. His son, Lord Hartington, who succeeded to the dukedom, was parliamentary under secretary of state for dominion affairs and from 1924 to 1938, member for W. Derbyshire.

Devonshire, S.W. co. of England, bounded by the Bristol Channel on the N., Cornwall on the W., the Eng. Channel on the S., and Dorsetshire and Somersetshire on the E. It is the third co. in size in England, with an area of 2604 sq. m. The surface is hilly, with the rugged plateau of Dartmoor, broken into numerous rugged 'tors', in the S.W.; Exmoor in the N.W., and Blackdown. On the lower slopes the soil is very fertile, especially in the dist. of 'South Hams' with its gardens and apple orchards. The coast-line of D. extends for about 150 m.; the N. coast is very rugged with cliffs 400-500 ft. high and great rocky inlets, of which the chief is Bideford Bay. On the S. coast are Bolt Tail and Start Point among others; and Tor Bay and Plymouth Sound, which is one of the finest harbours in the kingdom. The chief rvs. are the Tamar (59 m.), the Exe (54 m.), the Dart, the Teign, the Taw, the Torridge, and the Plym. Besides its

Besides Plymouth, the chief tns. are Exeter, the cap., Torquay and Paignton, noted health resorts; Tiverton, Barnstaple, Tavistock, Brixham, Dartmouth, Teignmouth, and Princetown on Dartmoor, the great convict prison. Among the famous men born in D. were Sir Francis Drake and Sir Walter Raleigh, Sir John Hawkins, John Davis, Sir Humphrey Gilbert, Sir Richard Grenville, John Churchill (Duke of Marlborough), Sir Joshua Reynolds, S. T. Coleridge, and Charles Kingsley. D. is considered by many to be unsurpassed as a region for the holiday-maker. Scenery, history, antiquities including age-worn cromlechs and circles, a graciousness in its people, a mild climate, all combine to interest alike the literary man, the artist, the photographer, and the walker. The co. returns seven members to Parliament. Pop. 734,000. See J. Prince, *Worthies of Devonshire*, 1701; R. N. Worth, *History of Devonshire*, 1886; S. Baring-Gould, *A Book of Dartmoor*, 1900; Victoria County History, *Devonshire*, 1906; F. Gribble, *The Romance of the Man of Devon*, 1912; V. C. Clinton-Baddeley and S. Palmer, *Devon*, 1928; H. Williamson, *Devon Holiday*, 1935.

Devrient, name of a Ger. family of

actors, particularly Ludwig D. (1784-1832), who was noted for his Shakespearean rôles, and his three nephews, Karl August (1797-1872), Philip Eduard (1801-77), and Gustav Emil (1803-72). The last was noted for his Hamlet which he played in London and Dresden. Otto D. (1838-94), the son of Philip Eduard, was also noted for his adaptation of Goethe's *Faust*, 1876. Other plays by him were *Tiberius Gracchus* (1871) and *Gustav Adolf* (1891). Max D. (1857-1929) was the son of Gustav Emil and followed in his father's profession.

De Vries, Hugo (1848-1935), Dutch botanist, *b.* at Haarlem, educated at Leyden and Heidelberg, and under Julius Sachs at Würzburg. After holding various educational posts in Germany, he accepted the professorial chair of botany in Amsterdam, where he applied himself to the problems of evolution as they affect plant life. In his botanical research work he was influenced by the Mendelian theories, and originated the theory of mutation. He made special use of the (*Eurotia lanuaciana*, or evening primrose, which now grows profusely in Europe, though originally a native of America. See essays in *Berichten der deutschen botanischen Gesellschaft*; and his prin. work, *Die Mutationstheorie*, 1901-03.

Dew (Old Eng. *deaw*), the moisture found on the surface of the earth during the night and early morning, particularly after a hot day, and produced by condensation of the vapour of the atmosphere on contact with the earth cooled by radiation. The old theory, dating from the earliest times, was that D. fell from above; it was Dr. W. C. Wells, of London, in his *Essay on Dew* (1814), who promulgated the above theory of radiation. He went on to say that for every definite pressure and temp. of the atmosphere there is a definite quantity of water-vapour which can be kept in suspension until it comes in contact with some cool substance, and is itself cooled below a certain temp., when the vapour will condense. This point of temp. is called the 'dew-point.' In 1885 Altken by experiments discovered that while undoubtedly some of the moisture called D. was the result of condensation of the atmosphere, the 'greater part' is formed from moisture 'just risen from the earth or to the surface of plant leaves.' During the night, when evaporation ceases to a great extent, the vapour still rising from the ground is either condensed at once on its cold surface, or is trapped by the grass or plant-leaves which have cooled even faster than the surface of the ground. D. can be formed only under certain conditions; wind prevents the atmosphere from remaining sufficiently long in contact with the earth to cause condensation, and a cloudy sky prevents it by checking radiation. When the temp. of objects with which the vapour comes in contact falls below freezing point, the D. is condensed into a solid substance and is called 'hoar-frost.' The average ann. deposit of D. near London is 1 to 1.5 in.

Dewar, Sir James (1842-1923), Scottish chemist and physicist, *b.* at Kincardine-on-Forth. He early developed a taste for music, and made violins. Educated at Dollar Academy and at Edinburgh Univ., where he assisted Lyon Playfair. Also studied at Ghent and later was demonstrator of chemistry at Edinburgh, and lecturer in the Dick Veterinary College. In 1875 became Jacksonian prof. of Natural Experimental Philosophy at Cambridge, and in 1877 was made F.R.S. and Kullerian prof. of chemistry at the Royal Institution, London. Among numerous other honours, he received the Rumford medal of the Royal Society in 1894, was the first holder of the Hodgkin's gold medal of the Smithsonian Institution, Washington, and the first Brit. scientist to be awarded the Lavoisier medal of the Fr. Academy of Sciences (1904). He was co-inventor with Sir Frederic Abel of cordite, made valuable experiments in spectroscopy and investigated the physiological action of light; but his 'low temperature' discoveries form his most valuable contribution to science. Besides being the first to demonstrate before a public audience the liquefaction of oxygen and air, he invented an apparatus by which liquid oxygen by the pint can be produced, devised vacuum-jacketed vessels (now known universally as thermos flasks) for the storage of liquid gases, first collected liquid hydrogen (in 1898), and finally (1899) succeeded in solidifying this gas as he had previously (1886) solidified oxygen. His experiments showing the gas-absorbing properties of cooled charcoal led, during the 1914-18 War, to the invention of antidotes to poison-gas. He was knighted in 1904; and died at the Royal Institution, London. See also BEILBY; CARBONISATION.

Dewas, two native states and tn. of Central India, governed by the descendants of the two brothers, Punwar Maharrattas. The cap., D., is situated 20 m. N.E. of Indore. The state of the senior branch (749 sq. m.) has a pop. of 77,000; of the junior branch (419 sq. m.) one of 70,000.

Dewberry, or *Rubus coccineus*, is a species of Rosaceae nearly related to *R. fruticosus*, the bramble. It receives its name from the fine waxy secretion which covers the black shining fruit and somewhat resembles dew. The fruit resembles the bramble in appearance, but is somewhat coarser and more acid, and the plant is also called the running briar or blackberry.

D'Ewes, Sir Simonds (1602-50), chronicler, was called to the Bar, but never practised. An M.P. in 1640, he was expelled from the House when Pride's purge was applied. A conceited pedant, a Puritan, and a moderate Royalist, he collected a number of historical records, which proved invaluable to Selden, but he is best remembered by his autobiography and letters, ed. by Halliwell (Halliwell-Phillips) in 1845, which form a contemporary review of public events up to 1636.

De Wet, Christian Rudolph (1854-1922), Boer general and statesman, *b.* at Farm Leeuwkop, Orange Free State, served in

the first war (1880-81) between the Eng. and his countrymen as a field cornet. From 1885 to 1897 he was a member of the Orange Free State Volksraad, and when the S. African War broke out in 1899 he became general and commander-in-chief of the Free State forces, fighting at first under Cronje in the W. He proved himself perhaps the most formidable of all the Boer leaders in guerrilla tactics. After capturing Sanna's Post, near Bloemfontein, and gaining soon afterwards the victory at Reddersburg, De W. showed himself a master in devising sudden manœuvres, falling unexpectedly on detached Brit. columns, and destroying a number of weakly garrisoned outposts. In 1902, whilst the negotiations for peace were in progress, he came to England with the other commandants, and in the same year pub. his narrative of the campaigns, the Eng. trans. of which is entitled *Three Year's War*. In 1907 he was elected a member of the new Parliament of the Orange Free Colony and also minister of agriculture. In the Closer Union Convention of 1908-9 he was a delegate. An ardent Nationalist at heart, he chose the picturesque rôle of the Dutch patriot rather than join the greater cause as a S. African. He gave expression to his views in 1911, when he joined General Hertzog, who was pursuing a separatist policy, and therefore seceded entirely from the S. African Party. He became an active member of the Nationalist Party, and the outbreak of the First World War gave him the opportunity of expressing his extreme views in an active form, for he headed a revolt against the gov. He was captured by Botha in Dec. 1914 and brought to trial on charges of high treason, on many of which he was convicted. He was sentenced to six years' imprisonment and fined £20,000. After being in captivity for a year, he was released on giving an undertaking not to engage in political agitation. He died at Bloemfontein.

De Wette, Wilhelm Martin Leberecht (1780-1849), Ger. theologian, b. at Ulla, near Weimar, came under the influence of Herder and later studied theology under Paulus. Prof. of theology at Heidelberg (1807-10) and Berlin Univ. His fearless and yet spiritual criticism of the Bible has earned for him a position aloof alike from such pure rationalists as Paulus and from the school of orthodox writers and supernaturalists. His chief works are *Commentar über die Psalmen* (1811), *Ueber Religion und Theologie* (1815), and *Einleitung in das Neue Testament* (1836).

Dewey, George (1837-1917), Amer. admiral, b. at Montpelier, Vermont, U.S.A. Graduated at the Amer. Naval Academy in 1858. He served with the Mediterranean Squadron until the outbreak of the Civil war, when he was made commander-lieutenant in charge of the sloop, *Mississippi*. He was in the fleet commanded by Adm. Farragut when the latter forced the passage between Fort St. Philips and Fort Jackson which guarded the entrance to the Mississippi some 70 m. below New Orleans. He also took part in

the action by which Farragut captured that great S. city and port. After the war D. was made commander in 1872 and captain in 1884. In 1877 he was an instructor at the Naval Academy. He was made a commodore in 1896, and when the Sp.-Amer. war broke out was in command of the fleet in Asiatic waters. He received secret orders to proceed to the Philippines and engage the Sp. fleet, which was lying in Manila Bay. Under the cover of darkness on the night of April 30, D. sailed his fleet of nine ships through without being discovered. The ten Sp. ships, under Adm. Montojo had the protection of the guns of Cavite, a tn. near Manila. The battle which ensued soon after dawn was short and decisive for the weight of metal was on the side of the Amers. By early afternoon the Sp. fleet was a mass of smoking ruins, and hundreds of Spaniards were dead or wounded. Not a single Amer. ship was disabled nor a single sailor killed. The news astonished the U.S.A., and D. became a popular hero. D. and his fleet participated in the capture of Manila. After the war was over, D. returned home, and was given a triumphant welcome. He was promoted admiral, and Congress gave him a sword of honour. He served on the first Philippine commission in 1899, and in 1901 was president of the court of inquiry into the controversy arising out of the naval battle of Santiago. See J. Barrett, *Admiral George Dewey*, 1899.

Dewey, John, Amer. philosopher; b. Oct. 20, 1859, at Burlington, Vermont; son of Archibald S. D. Educated at univ. of Vermont; Ph.D., Johns Hopkins, 1884. Prof. of Philosophy at univ. of Minnesota, 1888-89; of Michigan, 1889-94; of Chicago—where he was also director of the School of Education—1894-1904; and since then at Columbia Univ. where he was prof. of philosophy and later prof. emeritus. He has been termed a pragmatist: but his is not the pragmatism of Wm. James; it is more like the pragmatism of Peirce, and is more generally called instrumentalism. In Sept. 1929 he presided at the inauguration of a League for Independent Political action—intended to supply a new Labour party in Amer. politics. Works include: *Psychology* (1887), *Leibnitz's New Essays* (1888), *Critical Theory of Ethics* (1894), *Study of Ethics* (1894), *Psychology of Number* (1894), *The School and Society* (1899), *Studies in Logical Theory* (1903), *How We Think* (1909), *The Influence of Darwin on Philosophy*, etc. (1910), *German Philosophy and Politics* (1915), *Democracy and Education* (1916), *Reconstruction in Philosophy* (1920), *Human Nature and Conduct* (1922), *Experience and Nature* (1925), *The Public and its Problems* (1927), *The Quest for Certainty* (1930), *Art and Experience* (1934), *Logic, the Theory of Enquiry* (1938), *Freedom and Culture* (1940).

Dewey, Melvil, see CATALOGUES AND CATALOGUING.

Dewey, Thomas Edmund (b. 1902), Amer. lawyer and politician. He was educated at the univ. of Michigan and studied law at Columbia Univ. In 1925

he entered the legal profession, becoming in 1931 assistant to the U.S. attorney for the S. dist. of New York, and four years later he was appointed special prosecutor for the Investigation of Organized Crime in New York. In this capacity and in the more important position of district attorney for New York, to which he was appointed in 1937, he was prominently associated with the suppression of racketeering. He took an active part in the presidential campaign in 1940 on behalf of Wendell Wilkie, the Republican candidate, and his speeches during the campaign were pub. In the same year under the title *The Case against the New Deal*. In 1942 he was elected governor of New York, and his administration has been notable for its drive against inefficiency and corruption. His success led to his nomination as Republican candidate in the presidential election of 1944. He polled over 40 per cent. of the votes but lost the election to President Roosevelt by some three and a half million votes. In 1948 he was again defeated, by Roosevelt's successor President Truman. See R. Hughes, *Thomas E. Dewey*, 1944.

De Windt, Harry (1856-1933), Eng. explorer and journalist, acted as aide-de-camp to his brother-in-law, Rajah Brooke of Sarawak from 1876 to 1878. From 1887 to 1894 he divided his time between reaching France by land from Peking, travelling on horseback to India, via Persia from Russia, and inspecting the mines and especially the prisons of Siberia. In 1895 he was chosen Eng. delegate at the Penal Congress in Paris. His effort to cross from New York to Paris by land, undertaken in 1896 for the *Pall Mall Gazette*, ended in wreckage on the Behring Straits, but in 1901-2 he successfully accomplished the journey the other way round (Paris to New York) for the *Daily Express*. Was special correspondent of the *Westminster Gazette* in 1906, in the Balkans and Russia, the sequel being the illuminating book entitled *Through Savage Europe* (1907). Pub. also *My Restless Life* (1908), *A Woman in Black* (1912), *Russia as I Know It* (1916).

De Winter, Jan Willem (1750-1812), Dutch admiral, b. at Kampor. Entered navy at twelve. In 1787, fled to France. With Fr., re-entered Holland 1795; entrusted with reorganisation of Dutch Navy. Defeated by Brit. Adm. Duncan at Camperdown, Oct. 11, 1797; prisoner in England till Dec. Dutch plenipotentiary, France, 1798-1802. Reappointed to command of navy, subdued Tripolitan pirates. Marshal of France. Commander of sea and land forces of Holland under the Bonapartes. Died, Paris, June 2, 1812.

De Witt, Cornelius (1623-72), famous Dutch burgomaster and patriot, brother of J. de W. (q.v.), b. at Dort, of which he became burgomaster at the age of twenty-seven. Also a member of the states of Holland and W. Friesland, in which capacity he accompanied De Ruyter on his naval expeditions. It was through his influence that his more famous brother

became pensionary of Dordrecht. He supported his brother's policy with great ability and courage, notably when he sailed with de Ruyter after the proclamation of the 'perpetual edict'—of which he disapproved—abolishing the hereditary office of stadtholder. But after the defeat of the Dutch fleet the partisans of the House of Orange excited the hatred of the people against the two brothers, and Cornelius was arrested on a false charge of conspiring to poison the prince of Orange. Killed at The Hague in 1672, after rendering great service to his country as its chief magistrate for some twenty years.

De Witt, Jan (1625-72), Dutch statesman, b. at Dort, the son of Jacob de W., a burgomaster of Dort and deputy to the states of Holland, from whom he inherited his republican principles and hatred of the house of Orange. In 1650 he was elected pensioner of Dort, and opposed unsuccessfully the war against England. The disasters of the war made his pacific policy so popular that in 1653 he was elected grand pensionary of Holland for a period of five years, and was re-elected in 1658 and 1663. In the meantime William II., the Stadtholder, had died, leaving only an infant as heir, so that de W. was able to turn from his opposition to the family of Orange to international politics. In 1654 he negotiated a treaty with Cromwell with a secret proviso that no member of the House of Orange should be made stadtholder. On the accession of Charles II. to the throne of England the treaty of peace was rendered void, and in spite of de W.'s efforts for peace, war broke out again between the two countries in 1665. De W. conducted it with vigour and skill, and on the death of Adm. Opdam personally took command of the fleet, and by his diplomatic skill contrived the treaty of Breda (1667) and the formation of the triple alliance between Holland, England, and Sweden (1668) to frustrate the designs of Louis XIV. in Holland. Louis, however, bribed Charles II. to desert the alliance, and in 1672 suddenly invaded the United Prov. The action was too sudden to render preparation possible, and the people blamed de W., and appointed the young prince of Orange commander of the forces. Jan de W. thereupon resigned his office of pensionary. His brother, Cornelius, had been tried and acquitted on a charge of conspiring against William, and Jan de W. went to meet him on his release. An infuriated mob burst into the prison, probably at the instigation of their enemies, and murdered both brothers.

Dew Ponds, found on the upper reaches of the chalk hills in the S. of England and in a few other localities. They are used as a source of water supply for cattle, and it was once thought that they were entirely dew-, not rain-fed. See Gilbert White, *Natural History and Antiquities of Selborne*, (1789). However, this theory is rather doubtful, though artificial D. P. or reservoirs are sometimes constructed, it being necessary to fill the basin with water at the start.

Dewsbury, mkt. tn., municipal and pari. bor. in the W. Riding of Yorkshire,

England, on the R. Calder, 8 m. S.S.W. of Leeds, in the heart of the woollen district. Among the public buildings are the par. church of All Saints, with remains of early Eng. architecture (rebuilt in the eighteenth century), tn. hall (1888), St. Augustine's Grammar School, a covered market, and a theatre. Coal is worked in the neighbourhood, and there are iron foundries, and machine, dyeing, and glass works. The chief manufs. are blankets, carpets, druggets, and worsted yarn. D. is a tn. of great antiquity, and, according to tradition, Paulinus preached Christianity to the heathen Saxons on the site of the par. church in A.D. 627. The fourteenth-century court house of the rectory manor is used as a par. hall; Crow Nest Park is 73 ac. in extent. Pop. 54,000.

Dexter, see under **HERALDRY**.

Dexter Breed, see under **CATTLE**.

Dexter, Henry Martin (1821-90), Amer. Congregationalist minister. He was pastor of a church in Manchester, New Hampshire (1844-49), and later at the Berkeley Street church in Boston (1849-67), but also found time to edit the *Congregationalist* (1851-90) and the *Congregationalist Quarterly* (1859-66). Furthermore, he was the author of many treatises, chiefly on Congregationalism (1865-85).

Dextrine, or **British Gum**, the soluble or gummy substance obtained from starch by the action of diastase or certain acids on starch, or by heating starch to 392° F. (200° C.). D. and starch are related in structure, and both possess the empirical formula $C_6H_{10}O_5$. D. receives its name from its power of rotating the plane of plane polarised light to the 'right,' i.e. in a clockwise direction as viewed through the eyepiece of the polarimeter (q.v.). Pure D. is an odourless, whitish substance. It does not reduce Fehling's solution. It is often used as a substitute for gum-arabic for stiffening materials, sizing papers, and thickening ink; also for postage stamps and adhesive labels.

Dextrose, also called glucose, grape-sugar, and diabetic sugar, a carbohydrate of the formula $C_6H_{12}O_6$. It occurs in honey, grapes, in the body fluids of the animal kingdom, and in the urine of diabetic patients. It forms about 0.15 per cent of normal arterial blood. The sugar of grapes consists largely of D. as the fruit ripens, but when quite ripe it becomes 'invert' sugar, that is, equal quantities of D. and levulose. Pure D. crystallises in six-sided plates; it melts at 86° C., and loses its water of crystallisation at 110° C.; it is soluble in water but only slightly soluble in alcohol. Invert sugar or saccharum is used in the brewing industry. It is prepared by treating cane or beet sugar with dilute acid. The excess of acid is removed with chalk, and the product concentrated to a thick syrup. D. by itself is prepared from starch, which is treated with boiling dilute acid. The product is first a mixture of dextrin and maltose and then becomes D. In Britain the starch used for the manuf. of D. is usually (in normal times) sago, rice, or maize; in Germany, potatoes; and in

America, maize. D. is also used as the sweetening factor in jams, etc.

Dey (Turkish *dai*, a maternal uncle). Form of address originally given to elderly men and taken by the janissaries as the title of their commanders, a commanding officer of the janissaries frequently becoming governor of the prov. in which he served. The name was given to all rulers of Algeria (before the Fr. conquest), and was extended to Tripoli, and to Tunisia in the form 'bey.'

Dezhnev, or **East Cape**, most easterly point of Asia, situated at the entrance to Behring Strait in 190° E. A distance of about 56 m. separates it from Cape Prince of Wales on the Amer. shore.

Dhalac, **Dahalac**, or **Dahlak**, group of is. in the Red Sea, situated 30 m. E. of Massawa, Eritrea. They number three larger is., with numerous rocks. The chief, named Dhalac, was in Rom. times celebrated for its pearl fisheries. Pop. about 1900, of Abyssinian origin.

Dhar, stato in the prov. of Malwa, Central India. The tn. of D. is the cap., 35 m. S.W. of Indore. It contains several fine half-ruined mosques. Pop. 20,000.

Dharma-shastra, the title given to the whole code of Hindu law, but more especially to that collection of law received directly from a divine source by the sages of Manu, Tajnawalkya, and others. It is divided into three parts: *Acharya*, rules of conduct and practice; *Vyachara*, the administration of justice; *Prayachitta*, penance.

Dharmasala, hill-station in the Kangra dist. of the Punjab, India. It stands on a spur of the Dhaulala Dhar, and is surrounded by scenery of extreme beauty. The station was devastated by an earthquake in 1905, in which the barracks collapsed and buried a large number of the Gurkha garrison with their women and children. Pop. about 7000.

Dharwar, dist. and tn. in the prov. of Bombay, India. The dist. covers an area of 4536 sq. m. Cotton and wheat are the chief products, the former being of great importance. The cap. is D., with manuf. of silk and cotton cloth. A college in arts and science was opened here in 1912; there are also training colleges for teachers of both sexes, and Anglican and R. C. churches. The dist. jail is partly organised for juveniles on the Borstal System, the first of its kind in India, and there is a mental hospital. Pop. 36,000.

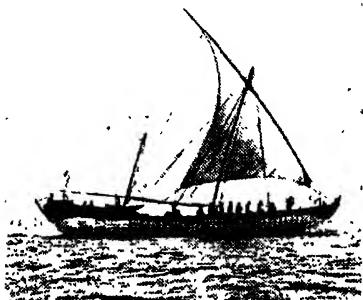
Dhaulagiri, or **Dhwalagiri**, peak of the Himalaya Mts., once regarded as the loftiest, but now known to be the third in height. It is 26,826 ft. above sea-level and is situated between Nepal and Tibet, in lat. 29° N. and long 82° 30' E.

Dhole, species of wild dogs (*Cyon* *decemcanis* and *C. alpinus*) found in packs in many parts of India. It is somewhat larger than the jackal, differs from the true dogs (genus *Canis*) in having fewer teeth, is fiercer and cannot often be tamed.

Dholpore, or **Dholpur**, native state of Rajputana (now Rajasthan, q.v.) India, having an area of 1200 sq. m. The dist. is very fertile. The cap. of the state, founded in the eleventh century, is also called D.

and is situated on the Chumbuh, 34 m. S. of Agra. The High School is housed in a building originally built as a mausoleum. In its vicinity, about 3 m. to the E., is an artificial lake upon whose banks are 114 temples. Pop. of state 230,000; of city 17,000.

Dhow, the regular Arab trading vessel of the Arabian Sea, and E. African coast; formerly used more particularly for the slave trade. It is generally from 150 to 200 tons burden, with a very long yard, and a single mast with a lateen sail. The language to which the word belongs is unknown.



ARAB DHOW

Dhrangadra, native state and tn. in the prov. of Bombay, India, situated in the division of Gujarat. The cap. D. is about 74 m. W. of Ahmedabad. Pop. state 90,000, tn. 20,000.

Dhuleep Singh (1837-93), a maharajah of the Sikhs, son of Runjeet (Ranjit) Singh, proclaimed in 1843. After repeated attacks on Brit. ter., D. S. was defeated at the Battle of Gujrat in 1849 and deposed. He became a Christian, married a Ger. lady, and took up his abode in England. In 1882 he demanded money of the Brit. Gov. The demand was refused, and he issued a proclamation to his former subjects and started for India. He was detained at Aden and publicly abjured Christianity, actually within the residency. In 1887 he returned to Europe and travelled through Russia, trying to find someone to take up his claim against England. In 1890 he was pardoned, but decided to remain in Paris, where he died.

Dhulia, tn. of India, in the prov. of Bombay. It is the cap. of the Khandesh dist., and is situated 128 m. S.E. of Surat. There are textile manufs. and an extensive trade in cotton. Pop. 30,000.

Dhulipnagar, or Bannu, see EDWARD-ABAD.

Dhunchee (botanical). Bengal hemp, a long strong fibre used in making cordage. It is derived from *Sesbania aculeata*, an E. Indian annual herbaceous plant of the family Fabaceae.

Dhwalgiri, see DHAULAGIRI.

Diabase, group of rocks consisting of augite and triclinic felspar with iron oxides, to which are sometimes added apatite or olivine. Owing to the weathering of these rocks, the augite, which is black, speedily changes to chlorite and urath, which cause the rocks to assume a green colour, whence its old name of green-stone is still sometimes used. The terms diabase and dolerite are used for different facies of the same set of rocks, the former being really a weathered form of the latter. Popular names for D. are trap, toadstone, and whin. They form excellent stones for road-mending, and are found in the N. of England.

Diabelli, Antonio (1781-1858), Austrian composer, b. at Vienna; also founder of a firm of music publishers. He is chiefly remembered by the fact that a waltz composed by him was used by Beethoven as the theme of his *Thirty-nine Variations on a Theme by Diabelli* (Opus 120).

Diabetes, a metabolic disease, the chief symptom of which is an excessive discharge of urine. There are two distinct varieties: *diabetes mellitus* (mel, honey), in which the urine contains large quantities of sugar, and *diabetes insipidus*, which is characterised by a chronic excess of ordinary urine. The tissues of a normal individual have a limited power of storing and utilising sugar; any condition which interferes with this power of the tissues may produce diabetic symptoms to a greater or less extent. The latest researches seem to point to the failure of the pancreas to produce insulin (*q.v.*), as the cause of chronic glycosuria, or *diabetes mellitus*. The function of insulin is to stimulate the liver to regulate blood sugar, excess sugar being stored in the liver as glycogen; in the absence of insulin, the concentration of blood sugar rises, until finally it appears in the urine. In some cases actual disease of the pancreas is reported, but in other cases D. exists with apparently healthy pancreas, and it is known that the disease can also be caused by abnormalities of the thyroid and adrenal glands. Heredity is an important factor. Dwellers in cities are more liable than country folk, men more than women, Jews more than other races living under the same conditions. D. in individuals under middle age is a particularly serious condition, in older people it yields more readily to treatment, though cures are rare. The symptoms are continual thirst, deficiency in perspiration leading to a harsh and dry condition of the skin, skin eruptions, and discharges of urine up to as much as thirty pints a day. On evaporating the urine crystals of sugar are found. The disease is most dangerous from the possible complications. Wasting of the tissues occurs and phthisis or pneumonia may attack the patient; other possible by-effects are boils, gangrene, and cataract. Disturbance of fat metabolism causes the formation of poisonous ketone bodies and diabetic coma. The most effective mode of combating the disease is a dietary which excludes all starchy foods and those containing sugar. Gluten

bread, bran cakes, and almond biscuits should take the place of ordinary bread; green vegetables, fat of meat, and cream should be taken; but no sudden change should be made in the dietary, and carbohydrates should be resumed if there are any signs of drowsiness, as diabetic coma is an ever-present danger. Insulin must be injected if dieting is insufficient to keep the blood sugar normal and to prevent its presence in the urine. *Diabetes insipidus*, or polyuria, has the same general effects on the system without the excretion of sugar characteristic of *diabetes mellitus*. It should be treated by a full diet and hygienic conditions and by the injection of pituitrin, an extract of posterior pituitary extract. See R. D. Lawrence, *The Diabetic Life*, 1931; O. Leyton, *The Diabetic's Vade Mecum*, 1939; R. D. Lawrence, *The Diabetic A.B.C.*, 1940. See also BANTING.

Diablerets, noted mt., or secondary mt. group, of the Bernese Alps, Switzerland, situated between the De Vaud and Valais cantons. The highest point reaches 10,650 ft. It consists of four peaks, composed of limestone resting on soft shale beds, which easily become disintegrated, and fall.

Diacetylmorphine, see HEROIN.

Diaconus. See HILARY.

Diadochi, Wars of the (323-281 B.C.), arose over the problem of dividing Alexander's empire among the D. (or Successors) — former generals and companions of Alexander. The chief among them were Antigonus, whose ambition was to rule the whole empire, Antipater, regent of Macedonia, Lysimachus, Seleucus, satrap of Babylon, and Ptolemy of Egypt. After Antipater's death his son, Cassander, murdered Alexander's widow, Roxane, and her infant son. Each of the D. then assumed the title of king, and the wars between them were resolved into a coalition of Seleucus, Ptolemy, Lysimachus, and Cassander against Antigonus and his son, Demetrius. Demetrius was successful in Greece, but Antigonus was finally defeated and killed at the Battle of Ipsus (301 B.C.). Later Cassander died, and Demetrius became king of Macedonia. Lysimachus, king of Asia Minor, was betrayed into believing his son, Agathocles, a traitor, but by murdering him he involved himself in a war with Seleucus, and was defeated and killed at Coron (281 B.C.). Ptolemy had died in 283, and Seleucus, the last of the D., relinquished his possessions, but was assassinated.

Diadumenianus, Marcus Opilius Antoninus, son of the Rom. emperor Macrinus, A.D. 217. His father bestowed the title of Caesar on his son at Antioch in the following year. The father was defeated in A.D. 218 by Elagabalus, and the son, who was still a minor, was put to death. Owing to the bestowal of the title of Caesar and his medals which bear it, D. is sometimes reckoned among the emperors.

Diageotropism, see GEOTROPISM.

Diaghilev, Serge Pavlovich (1872-1929), producer of Russian ballet, was b. at Perm in Novgorod prov. He studied law and music; and especially interested himself

in old Russian art. In 1899 he founded *Mir Iskusstvo* (the World of Art). D. held an unsuccessful exhibition of Russian painting and sculpture in Paris in 1906. In 1908 he was in Paris giving concerts and opera, and again in 1909 with opera and ballet. The ballet made a sensation — especially *Scheherazade* by Bakst and Fokine, music by Rimsky-Korsakov, the production of which in London in 1911 revolutionised Eng. stage-dancing. Altogether, he produced over forty ballets and opera. Died at Venice. See lives by A. Haskell, 1935; S. Lifar, 1945.

Diagnosis, in medicine, is the method employed to identify a disease. It includes an inquiry into the past medical hist. of the patient and sometimes of his family, as well as an examination of his symptoms and general physical state. In addition, the practitioner will take into consideration any relevant knowledge of environment, habits of life and psychological characteristics. Information acquired in these ways is supplemented by physiological tests, X-ray examinations, chemical and bacteriological investigation of the blood, urine, etc., and of the results of measurements of blood pressure, heart action and the like, with suitable instruments. Correct diagnosis is a matter of the greatest general importance, since failure to identify a disease or to recognise it at an early stage may lead to unfortunate results. Even before the rise of science in the last century and a half, diagnosis had been carried to a high degree of accuracy, but the modern physician has such an array of carefully collated material, scientific information and appliances at his disposal, that he need not rely as much upon his own personal experience. In doubtful or difficult cases, recourse should be made to specialists, since proper treatment of a disease can be made only when the disease has been definitely identified. Training in diagnostic method is an essential part of the medical student's course. It should be mentioned that recognition of symptoms is a difficult problem, completely beyond the layman except in very simple instances. Self-treatment is consequently to be deprecated, as likely to cause more harm than good.

Diagonal Scale, a mathematical scale consisting of a set of parallel lines drawn on a ruler with other lines crossing them at right angles and at equal distances from each other. The extreme div. of the divs. so formed is then further subdivided into a number of equal parts, and other lines drawn obliquely across the parallels through the points of intersection. With the aid of compasses, lines can be laid down by such a scale of any required length, down to the two-hundredth part of an inch.

Diagoras, of Melos, surnamed the Atheist, a Gk. poet and philosopher of the fifth century B.C., said to have been a pupil of Democritus of Abdera. He was accused of impiety, more especially of criticising the Eleusinian Mysteries, and in 411 B.C. was condemned to death in Athens (Aristophanes, *Clouds*, 425 B.C.)

He fled to Corinth, and probably died there. Besides his work on the mysteries, he wrote lyrics and some philosophical treatises, none of which are extant.

Diagram, in mathematics is a figure serving to illustrate a definition or to aid in the proof of a proposition. In its more general sense it is a drawing to illustrate the structure of scientific apparatus, engines, machines, buildings and so on, as opposed to a 'picture' to which emotional significance or artistic value is attached. The value of a diagram lies in its power of conveying essential information at a glance; when the diagram is drawn to scale, this information may be quantitative as well as qualitative. Weather charts, temp. and pressure curves, road maps, etc., are very largely diagrammatic. An *indicator diagram* shows the effective work done by an engine. Constitutional formulæ in chemistry are conventionalised diagrams of what is believed to be the corresponding molecular structure. Biological diagrams bring out the features of biological importance in the objects drawn.

Dial. The literary organ of the Transcendental Club, of New England, U.S.A., in the formation of which Club Emerson took a leading part (see EMERSON). Sarah Margaret Fuller (q.v.) was the first and only editor (1840), with George Ripley as assistant editor. The D. was a paper for cultured readers, which discussed questions of theology, philosophy, music, art and letters; and its pages contained much verse. Among its best known contributors were Emerson, Thoreau, and Louisa Alcott. The public, however, disliked its peculiar and abstruse opinions, especially those in the *Orphic Sayings* of Louisa Alcott, and though Emerson succeeded in keeping the paper alive for a short while after Sarah Fuller relinquished the editorship, it ceased to exist in 1844.

Dialect (Gk. *διαλεκτικός*, conversation, or manner of speaking), in its widest sense the name applied to branch languages springing from a common root, as the Romance tongues, Fr., Ital., Sp., sprang from a common Latin root. But the term is popularly used to express the divergence of some local form of speech from the generally accepted or 'literary' form. It is quite wrong to speak of such local forms as 'corruptions' of the accepted forms. The anc. Gk. tongue was divided into Attic, Doric, Ionic, and Æolic Ds. Modern Gk. is derived from the Attic form, in which the works of Thucydides were written, while Herodotus wrote in Ionic; no one will say that the tongue of Herodotus was a corruption of that of Thucydides. The origin of D. is not in corruption at all, but is the result of descent from a different form; in old England, as in old Greece, the country was inhabited by different races; the dispossessed Celts were driven into the mts., while the Saxons, Jutes, and Angles spread over the land. From a variety of causes the D. which survives as modern literary Eng. is the Midland, that spoken by a branch of the Anglian tribes, but the D. forms are not corruptions of the Mid-

land Ds., but the direct descendants of the Celtic, the Saxon, the Northumbrian, and other forms of speech. Eng. itself, for that matter, is merely a D. of the Teutonic tongue, modified and enriched by Norman-Fr., Lat., and many later additions from classical and scientific sources. After the A.-S. settlement of Britain, the language of the country was roughly divided into six main forms of local speech, again divided into many small groups, which still prevail with characteristic variants from the accepted language, the Southern, Western, Eastern, Midland, Northern and Lowland Scots. Modern provincial Eng. has been carefully studied, its origin, where possible, traced, and its locality recorded in the papers of the Eng. Dialect Society (1873-96). Upon these papers Prof. Skeat, of Cambridge, largely based his Eng. dialect dictionary, the first vol. of which appeared in 1898. He was assisted by Prof. Wright, of Oxford, who classified the various Ds. and obtained a unique collection of phonograph records to preserve the idiom, with its correct accent and intonation, of Eng. rustic speech in different localities. Sir J. A. H. Murray has done a similar work for the Ds. of Lowland Scotland, in *Dialect of the Southern Counties of Scotland* (1873). For further information, see A. J. Ellis, *Existing Phonology of English Dialects*, 1889; the works of Prince Louis-Lucien Bonaparte on Eng., Basque, Fr., and especially Italian Ds.; J. Winkler, *Dialektik*, 1874, for Low Ger. forms; and for hybrid Ds., S. Haldeman, *Pennsylvania Dutch*, 1872.

Dialectic, a term in logic generally applied to verbal fencing and abstract arguments without practical value, and frequently merely the clever statement of fallacies to make them pass for truth. The term was used in the Socratic philosophy to show the inadequacy of popular beliefs; Plato used it for the highest kind of thought connecting itself with the true nature or idea of things, while Aristotle limited it to a probable deduction from probable reasoning, as opposed to a scientific or demonstrative reasoning or proof. The Stoics divided logic into 'D.' and 'rhetoric,' and from their time D. is sometimes used as synonymous with logic. In modern philosophy the name has been used in several senses; Hegel uses it in its original Socratic sense, while Kant uses it in general for the doctrine of fallacies, for the uselessness of the attempt of reason to overcome the principles which govern phenomena.

Diallage, one of the pyroxene group of minerals characterised by its lamellar or foliated structure. The name formerly included 'bronzite,' from which it is very hard to distinguish it. Its colour is generally brown, but sometimes grey or green, and has a metallic lustre on surface of the broken crystals.

Dialogue, a conversation between two or more persons, reported in literary form and with a greater unity and continuity of subject than characterise an ordinary conversation. When joined to action the D. becomes a drama. It has always been

a favourite mode with writers who, wishing to convince their readers of the truth of an argument, present both sides of a question in the mouths of two characters, and conduct the conversation in such a way that one is finally convinced of the correctness of the other. The D. is of Gk. origin, having been adopted by the Gk. philosophers as the best way of conducting their investigations and conveying their instructions to their pupils. The Ds. of Socrates took the form of question and answer, so that the master by means of questions led the pupil to originate himself the ideas which he, the master, wished to convey to him. The form of D. adopted by Plato was modelled on the Sicilian 'mimes,' little two-character plays which were popular before his time, none of which is extant. Plato simplified it to pure argumentative conversations, or philosophical dramas, and used the form for all his philosophical writings except the *Apologia*. One of the greatest masters of this form of literature was Lucian (second century A.D.), the title of whose most famous collection of Ds., *Of the Dead*, was borrowed by two great Fr. masters of the form, Fontenelle (1683), and Fénelon (1712) in their *Dialogues des Morts*. It has also been used by Erasmus in Latin; Wieland, Herder, and Lessing among the Germans; Petrarci, Tasso, and Leopardi among the Italians. In England the most famous writers of non-dramatic D. are Berkeley in *Hylas and Philonous* (1713) and Lander in his *Imaginary Conversations* (1821-25).

Dialysis, the term in chemistry for the process discovered by Thomas Graham (1804-69), by which 'colloids,' such as silicic acid, can be separated from 'crystalline' substances, such as salt or hydrochloric acid. He found that if a solution of a crystalline substance, salt for instance, were placed in a 'dialyser,' a vessel provided with a bottom made of parchment or animal membrane, and the dialyser placed in a larger vessel of water, the salt would permeate the parchment, whereas a similar solution of a 'colloid' would not diffuse, remaining intact in the original solution. The process is performed more rapidly with an increase of temp.

Diamantina, riv. of Australia, also called Mueller's Creek, flowing from the high ground in the N. of Central Queensland in a south-westerly direction into S. Australia. In the dry seasons it dries up in the interior, but during the rains it flows into the N. end of Lake Eyre.

Diamantina, until 1838 Tejuco, mining tn. in the state of Minas Geraes, Brazil, built on a steep hillside, 3760 ft. above sea-level. It is the centre of a diamond dist. and gold is mined in its neighbourhood. It has manufs. of cotton-weaving, cigars, and diamond-cutting. It is the seat of a bishopric, and is the centre of a large commercial dist., famous for its wealth. Pop. of tn. 8000; of municipality 70,000.

Diameter, a term in geometry for the line which passes through the centre of a circle or a cone section, and which is terminated at either extreme by the curve.

Diamond, a form of crystallised carbon of very high value, which is usually regarded as the most precious of all stones. It is, however, not so valuable as the ruby. The D. is always found in crystals of the cubical system, and is found most frequently in the form of octahedrons, or rhombic dodecahedrons. The crystals are strongly striated and the cleavage is perfect. Contrary to general opinion, the D. is rather brittle and can be injured by the slightest fall. The stone has a lustre peculiarly its own, termed adamantine lustre. It has high refractive powers, the index for refraction being 2.4, and the angle of total reflection about 25°. The stone is highly phosphorescent, and will, after exposure to brilliant light, emit the rays to which it has been exposed and become self-luminous in the dark. Its specific gravity is just over 3.5, and its hardness is far greater than that of any other stone, and is indicated by 10 in the mineralogical scale. The chemical character of the D. was for a long time uncertain. During the seventeenth century it was held to be inflammable. Robert Boyle proved that when subjected to a high temp., part of it was dissipated, and finally, at the expense of Duke Cosimo of Tuscany, the Florentines proved it was combustible. Lavoisier later showed that the product was carbonic acid gas; finally, Smithsonian Tennant (1781-1815) demonstrated that the amount of carbonic acid gas produced equalled oxygen consumed. The composition of the D. was therefore determined to be pure carbon in a crystallised form. Experiments have also been made as to the action of heat on Ds., and Gustaf Rose showed that under certain conditions Ds. when subjected to a great heat were gradually converted into graphite. For a long time India was regarded as the only D.-producing country, and it is certain that the Indian gem was the only stone known to the ancients. The chief D. dists. of India are: the Golconda dist. in the Madras Presidency, the Sambulpur mines of the Central Provs., and in Bundelkund (q.v.). The D. production of India at the present time is not large. Brazil was not regarded as a great D.-producing country until 1727, when the Ds. were first noticed, having been used by the natives as counters in certain card games. These Ds. were, without reason, for a long time regarded as inferior to the stones of India. Formerly the State of Minas in Brazil was a famous centre of D. production, and it has been estimated that stones to the value of £12,000,000 have been taken from the D. fields since 1727. The States of Matto Grosso, Goyaz, and Bahia are now the chief centres of D. mining in Brazil, but the industry has suffered since the advent of mining in S. Africa. The black D. of Brazil is, however, largely used for diamond drills. In Europe Ds. have been discovered, but in no great quantity. Australia has also produced some, but these again are not of great importance. The most important D. fields are those of the Belgian Congo and of Kimberley, S. Africa, which were discovered quite by accident. Chief

among the Kimberley mines are those of the De Beer, the Du Toit's Pan and the Ragfontein, all controlled by the Diamond Corporation, Ltd., also the largest buyer of rough stones in the world. The largest individual mine, however, is the Mwadui, in Tanganyika (owned by Dr. J. T. Williamson) which employs 5000 Africans



S. African Government
PREMIER DIAMOND MINE, PRETORIA

and 100 Europeans, and was discovered in 1940. In the South African D. mines the average labour employed, including individual diamond digging, was (1938) about 4600 Europeans and 17,500 natives and coloured. There are also valuable D. mines in the Gold Coast, the Congo, Sierra Leone, and Angola. The most recent returns give the annual production in metric carats (gems and industrial stones) as follows (1946): Congo, 6,033,000; Gold Coast, 700,000; Union of S. Africa, 1,281,787; Sierra Leone, 559,229; Angola, 808,000; Tanganyika, 119,446; Brazil, 325,000. The value of Ds. owned throughout the world was stated to be £600,000,000 in 1918, one-half being owned by residents in the U.S.A. A number of the Ds. in existence at the

present time have remarkable histories. The largest of all known Ds. is the Cullinan D. found near Pretoria early in 1905. It weighs 3032 carats, or more than three times the weight of any known diamond. It is at present in the Brit. regalia. Another fine stone is the Orloff D. which figured in the sceptre of the Russian regalia. It was purchased by Count Orloff for Catherine II. of Russia, and is supposed to have been the eye of an Indian idol. The Pitt D. holds the second place. It was brought back from India by the grandfather of the famous Eng. statesman, Wm. Pitt, and sold by him to the Regent Orleans for £130,000. It is held to be the most perfect D. in the world. Amongst other famous stones may be mentioned the Florentine (133 carats), and the Koh-i-noor, the most famous of all the stones belonging to the Brit. crown. This stone, which weighs 106.5 carats, has a long and romantic history, and came into the possession of the Brit. Crown in 1850 after the annexation of the Punjab. Others are the Hope Blue and the Star of the South. The 'Vargas' D. (named after the President of Brazil, and said to be the third largest known in the world) was found in Minas Geraes in Oct. 1938. It was sold to a Dutch firm at 700,000 guilders. The chief centres of the D.-cutting and polishing trade are Antwerp, Amsterdam, and Palestine.

Diamond Necklace, The, a piece of jewellery made in Paris by the Court jewellers, Boehmer and Bassenge, in 1775, and intended for Madame du Barry, the favourite of Louis XV. Louis XV. died before the necklace was completed, and its price was beyond the reach of any purchaser (1,600,000 livres). Cardinal de Rohan, duped by an adventuress (calling herself Comtesse de Lamotte-Valois and pretending to be in the service of the queen) into believing that Marie Antoinette had expressed a desire for the necklace, bought it on credit. De Rohan, by the connivance of De Lamotte, was accorded an interview with the queen, personated by Demoiselle d'Oliva, in which she accorded him pardon for past offences and promised to pay for the necklace in instalments if he would act as security. Immediately on securing the necklace, De Lamotte and her husband disappeared and sold abroad the separate Ds. When the first instalment became due the jeweller obtained an interview with the queen and the whole truth was exposed. De Rohan and the girl Oliva were thrown into the Bastille, but acquitted after a sensational trial. De Lamotte and her husband were captured, the former branded as a thief, and the latter sent to the galleys for life. The question whether the queen and De Rohan were innocent in the matter and merely the dupes of De Lamotte was long debated, and resulted in an increased unpopularity for the queen. See T. Carlyle, *Miscellanies*, 'The Diamond Necklace', 1837; A. Lang, *Historical Mysteries*, 1904.

Diana, anc. It. goddess, identified by the Romans with the Gk. Artemis, whose

attributes she received. Her name is the feminine form of the Rom. Janus. She was the goddess of the moon and of light generally, and the protectress of slaves on account of the introduction of her worship into Rome by the plebeians, although, according to some accounts, Servius Tullius introduced the worship of D., and it was at first confined to the patricians. As the goddess of childbirth, she was worshipped as Lucina, and was regarded as the patroness of chastity, all her maidens being virgins. She is generally represented as the daughter of Jupiter and Latona, born on the is. of Delos. She was sometimes called the Huntress, and represented with bow and arrows. Other names for her were Phoebe and Cynthia. There was a magnificent temple to her at Ephesus and a grove at Aricia. See ARTEMIS.

Diane de France, Duchesse de Montmorency et d'Angoulême (1538-1619), natural daughter of Henry II. and Philippe Duc. She was twice married, first to Orazio Farnese, second son of the duke of Parma, and then to François, Maréchal de Montmorency. She was formally legitimised in 1547. She was a wise and prudent woman, and had great influence with her brother Henry III., whom she succeeded in reconciling to Henry of Navarre. She directed the education of Henry of Navarre's son, afterwards Louis XIII., and then retired into close seclusion.

Diane de Poitiers (1499-1566), beautiful Frenchwoman. In 1515 she married Louis de Brêze, Grand Seneschal of Normandy. Left a widow in 1531, she gained the affections of the king's son. On his accession to the throne as Henry II., in 1547, she exercised almost unlimited power, and was created by him Duchesse de Valentinois. On the king's death she was expelled from court by Catherine de' Medici (who took from her the beautiful Château de Chenonceaux) and died at the Château d'Anet. See Marie Hay, *Madame Dianne de Poitiers*, 1900.

Dianthus, a caryophyllaceous genus of beautiful plants which occur in temperate parts of Europe, Asia, S. Africa, and N. America. Most of them are perennial herbaceous plants, but a few are woody; they are distinguished from allied genera by the bracts under the calyx. *D. caryophyllus*, the clove-pink, a native of Britain, is a wild plant which has given rise to the cultivated carnation and the pink of the florists; *D. libanotis*, the Syrian pink, has feathered petals; *D. barbatus*, the sweet-william, is a beautiful hardy herbaceous plant of S. Europe; *D. chinensis* is a species cultivated in British gardens; while *D. deltoides*, *D. Armeria*, and *D. cæsius* grow wild.

Diapason, an anct. Gk. term for the musical interval of an octave. The name is given to the two foundation stops of an organ, the open and stopped D., and by the Fr. in 'diapason normal' as equivalent to 'pitch.'

Dispensicææ, a small natural order of dicotyledonous plants found in cold regions. *Diapensia lapponica* is a creep-

ing plant of tufted habit found in the Alpine and Arctic regions.

Diaper: (1) In textile fabrics, the name given originally to a rich silken fabric with a pattern of the same colour embroidered on it. It is now restricted to linen or cotton material with a simple pattern woven in it, generally of a geometrical design. (2) In Gothic architecture, a small pattern of a conventional nature, generally geometrical, but sometimes floral in design, used for the surface decoration of stone. The idea was probably taken from the diapered pattern of Byzantine silks, and was also used in glass painting and illuminated manuscripts. There are good examples at Westminster Abbey and at Bayeux Cathedral.

Diaphoretics, measures taken to promote perspiration. The function of perspiration is to carry away waste products of metabolism through the skin and to keep the body cool. In some feverish conditions perspiration often ceases, so that the skin becomes dry and the internal temp. is not prevented from rising. It is advisable in some of these cases to promote perspiration by means of hot air, as in the Turkish bath; hot vapour, as in the Russian bath; by taking hot drinks or drugs such as opium and certain aromatics.

Diaphragm (Gk. διάφραγμα, partition), a partition with a hole in it, which is used in landscape and portrait lenses as well as all optical instruments, such as the telescope, microscope, etc. It controls the rays of light, and throws up the image with greater clearness.

Diaphragm, or **Midriff**, the partition which divides the thorax from the abdomen. It is in the form of a dome, the lower parts consisting of muscle and the centre of a tendon; it is concave towards the abdomen and convex towards the thorax, where the central tendon forms a floor for the heart. It arises in front from the posterior surface of the ensiform cartilage; at the side from cartilages connected with the lower six ribs; behind from the lumbar vertebrae. It has three large openings: one for the œsophagus and pneumogastric nerves, one for the aorta, thoracic duct, and large azygos vein, and one for the inferior vena cava. When the muscular fibres of the margin contract, the convexity of the D. is lessened and the size of the thorax is increased. Air flows in to fill up the additional space, and this, together with other muscular movements, comprises the action of inspiration.

Diarbekr, cap. of the vilayet D., Asiatic Turkey, on a high mass of basalt rock on the r. b. of the Tigris, with a pop. of 98,000. Gold and silver filigree is made, and wool, mohair and copper ore are exported. D. is still surrounded with black basalt walls with four gates. It was fortified by Constantine in the fourth century, fell to Saladin in 1183, was conquered by Timoor in 1394 and by Sultan Selim I. in 1516. Three other vilayets were formed out of the V. of D. in 1923, Arghana, Mardin, and Severeck, leaving that of D. with a pop. of 215,000.

Diarrhid, or **Diarmait**, the name given to three Irish kings: the first was ruler over Níu Neill, and his father was called Fergus MacCabeill. He was slain in 555 by Columcille's kinsmen in revenge for his having hanged that individual. The second reigned from 658 to 665, whilst the third reigned over Leinster.

Diarrhœa, looseness of the bowels, resulting in copious ejections containing much fluid in which biliary secretions are often present. It is a symptom rather than a disease, and is specially characteristic of cholera, dysentery, and typhoid fever, and often accompanies liver disease, ulcerated bowel, and acute consumption. In other cases some temporary irritation of the intestines is the cause, such as may be produced by improper or unfamiliar food, putrid or poisonous substances in food, or catarrh as the result of a chill. Generally speaking, D. should be regarded as the natural effort of the bowel to get rid of irritating substances, and this tendency should be encouraged by mild purgative measures. D. is apt to continue after the predisposing cause has been removed, and as its effects are inconvenient and exhausting, astringents should be administered. During the acute phase of the attack, the patient should abstain from food and lie down as much as possible. Food of a light nature should then be taken: milk, arrowroot, toast, beef-julce, and white of an egg are suitable, while small doses of brandy form a useful stimulant. Opium is the most effective astringent, but its use is not always advisable: ipecacuanha, galls, iron and bismuth salts, chalk, and alum may be administered. Chronic D. is best combated by regulating diet. A patient with a constitutional tendency to looseness of bowel can tell from experience the diet which is suitable to his own case, and should avoid anything markedly different.

Infantile diarrhœa causes many deaths in the hot summer months. It may be avoided by strict attention to cleanliness. The milk should be sterilised and the bottle thoroughly cleaned after use. D. may also be caused by worms, tuberculosis, or teething. A tablespoonful of lime water to every three or four ounces of milk may cause it to be retained. In bad cases give four drops of brandy in a teaspoonful of warm water. Astringents should be given under the advice of a doctor. See also ENTERIC FEVER.

Diathrosis, term in anatomy applied to joints which have the power of free movement, such as the socket joint of the hip, or the hinge joint of the elbow.

Diary (Lat. *diarium*, from *dies*, a day), the book in which a daily record of events or observations made by an individual is written. The 'Ephemeris' of the Oks., which was the original name of the 'diarium,' was originally a memorandum of military records, tables of the heavenly bodies, or of accounts; it was not until after the Renaissance that the D. came to have any literary value. Since then it has often been of value to the historian, not only in its supply of facts often unrecorded in historical chronicles, but as a picture

of character and of the daily life of its writer's time. Among the most famous Ds. of Eng. literature are those of John Evelyn (1620-1706), Samuel Pepys (1633-1703), perhaps the most valuable and minute record in existence; Swift's *Journal to Stella* (1710-13), John Wesley's *Journal* (1703-91), Fanny Burney's *Diary* (pub. 1842-46). The D. of the Russian, Marie Bashkirtseff, created a great sensation in 1887, and that of Jules and Edmond de Goncourt in Paris in 1888. See A. Ponsonby, *English Diaries*, 1923.

Diastase, a species of ferment found in barley, oats, wheat, and potatoes after germination. It can be procured by placing a certain quantity of freshly germinated barley or ground malt in a mixture of three parts of water and one of alcohol, heated to 113° F. When obtained separately D. is a solid, white, tasteless substance, soluble in water and in weak alcohol. In solution at a temp. of 150° F., D. is powerful enough to break up starch first into dextrin and then into sugar, particularly the variety called 'Maltose.'

Diastole, see under HEART.

Diastylidæ, the typical genus of the Diastylidæ, a crustacean of the order Cumacea. *D. arenarius*, about one-fifth of an inch long, is found on the coasts of Georgia and Florida.

Diathesis, a condition of the body in which it is specially liable to certain diseases. The term is particularly applied to inherited or congenital predispositions which may, however, become observable only at a late period in life. In process of evolution, the human body has become a structure capable of adding to its substance by utilising food-material and of eliminating certain other substances, such as waste-products, bacterial and other poisons. While we can recognise certain sets of reactions as being typical of human bodily processes in general, it must not be forgotten that each individual has peculiarities of composition and structure. Certain constituents of various tissues may abound in a greater or less degree than the average, causing variations in chemical reactions which may appear inconsiderable taken separately, but in the sum of their effects may constitute a predisposition to being attacked by particular types of the agencies which threaten human health. Thus, there may be a constitutional lack of resisting power to the entrance of the tubercle bacillus. This condition is known as tuberculous D. The recognition of a D. is often important in connection with the treatment to be adopted for any morbid state, as it may indicate that certain remedial measures are best avoided in view of the patient's general condition. The tendency to some diseases may also be defeated by the adoption of a habit of life unfavourable to its development. The following are some of the chief types of D.: *Bilious D.*, one in which there is imperfect elimination of bile as a chronic condition; *calcareous D.*, a constitutional tendency to the formation of calculi or stones; *cancerous D.*, the imperfectly understood condition

where cancers are liable to form; *nervous*, or *psychopathic D.*, an extreme sensibility of the nervous system, generally accompanied by a tendency to derangement: *gouty, lithic, rheumatic, or uric acid D.*, a constitutional tendency to the accumulation of uric acid and urates in the body fluids and consequent liability to gout, rheumatism, etc.

Diatoms, a group of algae, also known as Diatomaceae and commonly called by botanists Bacillariae. These minute plants are invisible to the naked eye, and were first discovered by Loeuwenhook in 1702. Since then, no fewer than 10,000 species have been discovered. The D. exhibit a great variety of form, being either circular, disk-shaped, oval, or cuneate. They thrive best where they can obtain plenty of light and moisture, and are to be found mixed with other organisms on the surface of moist rocks.

Diatonic, a musical term derived from the Gk. use. In modern music it denotes the tones, intervals, and harmonies of the normal major or minor scale, as distinguished from the 'chromatic.'

Diavolo, Fra (1771-1806), It. brigand; nickname given to Michele Pezza, a famous It. outlaw, formerly a monk, appointed by Cardinal Ruffo to help recover Naples, which was invaded by the French in 1799. Made one of the leaders of the 'bands of the Holy Faith'; these bands consisted of peasants, convicts, and brigands, and they succeeded in thwarting the enemy's plans. Upon the accession of Joseph Bonaparte to the throne of Naples, a price was placed upon D.'s head, and he was eventually captured by some Frenchmen and shot. Auber's celebrated opera *Fra Diavolo* has immortalised the name of the brigand.

Diaz, Armando (1861-1928), It. soldier, b. at Naples, Dec. 5, 1861. Colonel in Tripoli war. Major-General, 1911. Director of Military Operations on outbreak of First World War. Lieut.-General, 1916. In 1917, commanded 23rd Corps on the Carso. After Caporetto, succeeded Cadorna as Chief of Staff. Victorious at Vittorio Veneto, Oct.-Nov. 1918. After Armistice, Inspector-General. Made Duca della Vittoria, 1921. Minister of war on estab. of Fascism. Resigned in 1924 with new rank of marshal. Died in Milan.

Diaz (or Novaes, or Dias), Bartholomeu (c. 1455-1500), a Portuguese navigator, famous chiefly for his discovery of the Cape of Good Hope. He resided at the court of King John II., where he came into contact with many scientific men. He was eager for adventures, and sent by the king on a further voyage of discovery along the W. African coast. On this journey he rounded the Cape of Good Hope and discovered Algoa Bay; he succeeded in finding 1360 m. of unexplored coast, but met with little recognition for his pains. Accompanied Vasco da Gama on one of his voyages.

Diaz, Don Juan Martin, see EMPECINADO.

Diaz, José de la Cruz Porfirio (1830-1915), president of the Republic of Mexico, b. at Oaxaca, sixth child and eldest surviving son of José de la Cruz

Diaz, a labourer, probably of mixed Span. and aboriginal strain, who died in 1833. Porfirio's mother was half-blood Indian. At fifteen he was placed in the local seminary to train for the priesthood; but in 1849 he refused to take orders, entering the legal profession instead. Took part in the 'War of Reform' set on foot by Benito Juárez, a governor of Oaxaca. Also took part in resisting the invasion of the Fr. and the Emperor Maximilian, and succeeded in entering Mexico City in 1867, when he resigned his command of the army and retired to his own native city. Disturbances soon arose in Mexico City, and at last D. was forced to come and set matters right. He entered Mexico City triumphantly in 1876, and was unanimously elected president, which post he held for eight terms; but in April 1911 he was deposed by the successful revolution of Madero, who succeeded him in the presidency. He died in Paris.

Diaz de Gamez Gutierrez, a Span. writer (c. 1379-1450). His prin. works is *Victorial*, first pub. with omissions (1782) under the title *Cronica de don Pero Niño*.

Diaz de la Peña, Narcisse Virgile (1808-1876), a Fr. painter, b. at Bordeaux of Spanish parents. First began painting on porcelain in a studio at Sèvres; later he painted figures richly attired in Oriental garb. Among his masterpieces may be included 'La Fée aux Perles,' 'Sunset in the Forest,' and the 'Storm.'

Diaz del Castillo, Bernal (1498-1593), b. at Medina del Campo, wrote a most faithful account of the conquest of Mexico under Hernan Cortes. Was himself one of the small band of faithful followers, and was consequently an eye-witness of the deeds of glory and brigandage narrated by him.

Diazo-compounds, a family of carbon compounds the first of which to be discovered was obtained by Peter Griess of Burton-on-Trent in 1858. They are characterised by the presence in them of the -N₂- group of atoms (hence the name, from the Fr. *azot*, nitrogen). The constitution of this group is sometimes -N=N- and sometimes -N≡N; in the latter case the compounds are known as *diazonium* compounds. Diazo-C. are most common in the aromatic (q.v.) sense, but aliphatic (q.v.) examples are known. Aromatic Diazo-C. are prepared by the action of nitrous acid upon cooled acidified solutions of primary amines. In the said state they are frequently very explosive, but this instability is less marked in solution, though even here they enter readily into numerous reactions and are therefore of great importance in synthetic chemistry. They are also used largely in the manuf. of drugs.

Dibdin, Charles (1745-1814), Eng. actor and dramatist, principally remembered to-day as a writer of sea-songs, the first of which, 'Blow high, blow low,' was introduced into *The Seraglio*. Many other songs were introduced into other plays and sketches long since forgotten. In all he wrote about 600 ray sea-songs, and it is by the best of these he takes his

place in Eng. letters. They have an excellent lilt, and some specimens of them may be found in anthologies. He wrote his autobiography, and called it *The Professional Life of Mr. Dibdin* (1803).

Dibdin, Charles Isaac Mungo (1768-1833), Eng. dramatist known as Charles D., Jr., who produced his plays for the most part at Sadler's Wells, of which theatre he was proprietor. He wrote over 300 pieces, including melodramas, farces, pantomimes, but only a few were printed. He was the illegitimate son of Charles D. (q.v.)

Dibdin, Laura Ormiston, see CHANT, MRS.

Dibdin, Thomas John (1771-1841), illegitimate son of Charles D. (q.v.), and, like his father, a writer of plays and songs, of which he is said to have written about 200 and 2000 respectively. Few among his numerous works have lived: among the best known are: *The Cabinet* (an opera, 1805), *Past Ten O'Clock* (a farce), the pantomime of *Mother Goose*, *The High-mettled Racer*, an equestrian piece for Astley's. He pub. his *Reminiscences* in 1827.

Dibdin, Thomas Fognall (1776-1847), nephew of Charles D. (q.v.), born at Calcutta; lost both parents when only four years old. He came to England and was adopted by an uncle. Chiefly famous as a bibliographer. Amongst other works he wrote: *Introduction to the Knowledge of Rare and Valuable Editions of the Greek and Roman Classics* (1802), *Bibliotheca Spenceriana* (1814-15), *The Bibliomania or Book Madness* (1809), *The Library Companion* (1825), *Reminiscences of a Literary Life* (1836), and *A Bibliographical, Antiquarian and Picturesque Tour in the Northern Counties of England and in Scotland* (1838). The famous Roxburghe Book Club was founded by him, and Earl Spencer was elected first president.

Dibon, or Dhibân, cap. of the Moabites, 540 B.C., off the shore of the Dead Sea, renowned for the discovery of the famous Moabite stone of King Mesha.

Dibothriocephalus Tapeworm, or **Bothriocephalus**, genus of Cestoda, or tapeworms, which belong to the *Platyhelminthes*. The species have 2 weak and flat suckers, the body is segmented, and the head has no hooks. *D. latus* is parasitic on man, and as its first stage occurs in fish it is found in countries where fish is not thoroughly cooked, as in Russia, Poland, Switzerland, and S. France. It may attain a length of 30 ft. *D. liguloides* occurs in China and Japan and grows to a length of 8 in.

Dibranchiata, the order of molluscs. It includes all existing Cephalopoda except the pearly nautilus, and is subdivided into the Decapoda, with eight arms and two tentacles, e.g. cuttle fish; and Octopoda, with eight arms only, e.g. the poulpe.

Dibrugarh, a tn. of India situated in Assam. It stands on the Dibru, and is the terminus of the Brahmaputra steamer navigation, and a railway terminus, and is one of the most attractive places in India. Its large European population have expensive industrial enterprises. In the

vicinity are petroleum springs and important coal mines. There are considerable tea plantations, and coal and tea are exported in large quantities. The tn. possesses sev. schools. Pop. 15,000.

Dicæarchus, Gk. peripatetic philosopher, the pupil of Aristotle and a friend of Theophrastus. He was b. a Messia in Sicily and fl. about 320 B.C. He wrote on history, geography, and philosophy, but only a few fragments of his works remain. The greatest of his writings were *Life in Greece*, discussing the moral, social, and political condition of the people, and *Lespiaci*, in which he tries to prove that the soul is mortal. The best ed. of the fragments of his work is by Fuhr (1841).

Dicæst, or **Dicæstes**, name given to those who served on the jury courts in Athens. They attained to the zenith of their power after the fall of Areopagus in the time of Pericles, 460 B.C. Any citizen thirty years of age or upwards was entitled to assume the duties of the dicæst, and the number of members varied from 1001 to 5001. The post was somewhat of a sinecure as the members were too much governed by party feeling and personal motives. They laid themselves open in consequence to the shafts of Aristophanes' satire in his comedy *The Wasps*.

Dice is the plural of the word 'die,' and comes from the Latin *dare*, to give. They are small ivory or bone cubes, the six sides of which are marked with black dots from one to six. These dots are so arranged that any two opposite sides on the cube always make up the number seven. Two D. are called a pair. They are used chiefly for gambling purposes, but they are also employed in backgammon and other games. D. boxes were made in ant. time of leather or wood or some equally suitable material, and so constructed that no trickery could be resorted to in the throwing of the D. Palamedes is said to have invented D. about the year 1244 B.C., but we have still earlier evidences of their use in Egyptian times. In the Brit. Museum, in one of the cases in the Egyptian gallery, is to be seen an ivory astragal, which belonged to the Queen Hatshepsut, 1800 B.C. The astragal, or knuckle, or hucklebone, was the name given to the bone in the hind leg of cloven-footed animals such as the sheep, goat, or antelope. D. corresponding to ours have also been discovered at Thebes. The astragal undoubtedly corresponds to the hucklebone which was used in the old game of 'chance bone,' which was played by children in old Brit. times. Again, this game of 'chance bone' finds a striking parallel in the game of hazard played by means of two D., in which the player who first throws is called caster, while his opponent is called setter. This game with D. was declared to be illegal in the reign of George II. By 13 Geo. 2. c. 10, 'all games invented or to be invented with one or more die or dice' were forbidden, backgammon or games on a backgammon board being sanctioned. The reason of this prohibition was not far to seek; D. throwing had singular attractions for a certain class of swindlers, and it was a very

common practice to use loaded D. This trick consisted in slightly weighting the sides of the D. bearing a small number. Gambling has existed among all nations in some form or another; the Gks. and the Romans made use of the astragal or talus, and loaded D. have been unearthed in Pompeii. The use of D. in England can be traced back to the earliest times, when the Britons learnt the practice of gambling from their conquerors the Romans and the N. nations.

Dicentra, genus of Papaveraceae in the sub-order Fumariaceae, consists of fifteen species of N. American and Asiatic plants. Sev. arb. favourite ornamental herbs in Britain, especially *D. spectabilis*, and *D. cucullaria*, or Dutchman's breeches.

Dicey, Albert Venn (1835-1922), Eng. jurist, b. at Claybrooke. In 1854, entered Balliol College, Oxford, where he took first class in classics in 1858. Called to Bar in the Inner Temple, 1863. In 1890 he was appointed Q.C. His prin. works are: *Lectures Introductory to the Study of the Law of the Constitution* (1885), *England's Case against Home Rule* (1886), *Lectures on the Relation between Law and Public Opinion in England during the Nineteenth Century* (1905).

Dichlorotrichloroethane, commonly known as D.D.T., a synthetic insecticide of the formula $\text{CCl}_2 \cdot \text{CH}(\text{C}_6\text{H}_4\text{Cl})_2$. It was first prepared in 1874 but its insecticidal powers were not observed until 1939. D.D.T. was widely used during the war of 1939-45 and was instrumental in preventing or checking typhus and other insect-carried diseases. It still finds extensive employment, but is being superseded by even more powerful insecticides such as Gammaxane (q.v.).

Dicholophus, see **CARIAMA**.

Dichotomy, in botany, a system of branching in which the main axis at its apex divides into two, and each of these branches divide again at their apices into two, and so on. When the two branches are equally vigorous, the D. is said to be bifurcate; if, however, at each div. one branch becomes more strongly developed than the other two more forms of D. occur; scorpioid, when the right and left branches alternately are the more vigorous and helioid, when always the right or the left is the stronger branch. In the two latter systems the successive bifurcations appear to form an axis on which the weaker branches appear laterally.

Dichroism, a property possessed by some doubly refracting crystalline substances of appearing of different colours when viewed in polarised light, the difference of colour depending upon the direction in which the luminous vibrations take place. The D. of crystals can be observed or tested by means of a simple instrument called a dichroscope or 'dichroscope.' It is simply a cleavage rhombohedron of Iceland spar with a weak magnifying lens. The crystal is held in a good light opposite one end of the instrument and on looking through it two images of the square hole are seen just touching each other. If the crystal is dichroic these will be of different colours

and the colours will change if the dichroscope is rotated between the fingers. The most remarkable dichroic substances are the magnesian mica from Vesuvius, the tourmaline and ripidolite, also the sapphire and ruby. The phenomena of D. are best seen in crystals with two axes of double refraction, notably in folite which crystallises in six- or twelve-sided prisms; these prisms, when seen along the axis, are of a deep blue colour, but when viewed in a direction perpendicular to it, assume a yellowish brown colour. Tourmaline is another notable example, being blood-red when viewed along the axis, but yellowish-green when viewed at right angles to it.

Dichroite, see **CORDERITE**.

Dick, James (1743-1828), Scottish philanthropist, b. at Forres in Morayshire, and at the age of nineteen went to the W. Indies, where he acquired a fortune, the chief portion of which he left for the benefit of parochial schoolmasters of Moray, Banff, and Aberdeen. The 'Dick Bequest' was reorganised in 1890, and placed under the management of thirteen governors.

Dick, James (1823-1902), b. at Kilmarnock, Ayrshire. He invented gutta-percha boots, and with his brother, Robert, set up a factory at Greenhead, Glasgow, for the purpose of making and selling boots and shoes. He also manuf. the balata belts which were used by the gold diggers in Johannesburg. He reaped a fortune, and gave a park to Glasgow and the Elmbank Institute to Kilmarnock, besides other benefactions.

Dick, Sir William Reid, Scottish sculptor, b. in Glasgow, Jan. 13, 1879, and studied at the Glasgow School of Art and in London. He first exhibited at the Royal Academy in 1908. In 1933 he became President of the Royal Society of Brit. Sculptors, and from 1934-41 he was a trustee of the Tate Gallery. His work includes a large number of portrait heads and busts, notably the bust of King George V. in the Mansion House, London, and of Lord Kitchener in St. Paul's Cathedral, also King George VI. and Mr. Winston Churchill. Of other work by him mention must be made of his Bronze Eagle for the R.A.F. Memorial in London and the Lion on the Menin Gate at Ypres. His statue of King George V. stands in Westminster, and at Coventry there is an equestrian statue of Lady Godiva by him. Since 1928 he was a member of the Royal Fine Art Commission, K.C.V.O., 1935; King's Sculptor in Ordinary for Scotland since 1938.

Dickens, Charles John Huffam (1812-1870), Eng. novelist, b. at Landport (Portsea), near Portsmouth (the house at which he was born was opened as a Dickens Museum in 1901). His father, John Dickens, a clerk in the navy pay office was then stationed at Portsmouth, where he lived in very precarious circumstances. Charles was the second of eight sons. In 1816 the family moved to Chatham, remaining there for some five years. About particular details of these early periods of his life but little is known. In *David Copperfield*, however,

the sketch of David's boyhood is in many points similar to his own, and Micawber is usually recognised as a sketch of his father. His education was of a most elementary nature, but, fortunately, his father possessed a small collection of the works of the old novelists, Smollett, Fielding, Goldsmith, and Defoe, together with *Don Quixote* and *Gil Blas*. The family fortunes soon began to decline. His father was careless and impecunious, and the family settled in a poor part of Camden Town. Then even the little education Charles had been getting came to an end, for his father's creditors refused to delay any longer, and consigned John D. to the Marshalsea Prison. His mother



CHARLES DICKENS

tried to support herself for a time by teaching children, and young Charles was sent to work in a blacking warehouse at Old Hungerford Stairs. The description of this period of his life is given in *David Copperfield* with a clearness and bitterness which showed how deeply these two years of humiliation affected the sensitive boy. He spent Sundays with his parents at the Marshalsea. These years, however, supplied him with much of that wealth of knowledge of low life, of the street, of the prison, and the poor, of which he was afterwards to make such marvellous use. In 1824 his father was enabled to pay his debts and Charles spent another two years at school, a private establishment at Hampstead, parodied as Salem House. In 1827 he entered the office of Mr. Blackmore, a solicitor, where he remained for over a year. His early ambition was still active, and his application great. He spent hours in reading at the Brit. Museum and in mastering Gurney's shorthand. His natural powers of observation were also used to the best advantage, as his delightful sketches of legal dignitaries of all ranks clearly show. His father was still in difficulties, but Charles now managed to make his entry into journalism as a parliamentary reporter.

In 1833 he made his first appearance as a creative genius. In the *Monthly*

Magazine for December of that year appeared the first of those sketches of contemporary manners, collected in 1836 under the title of *Sketches by Boz*. He also made some contributions to the *Evening Chronicle*. About this time the issue of sporting novels of a humorous character, embellished with plates far more important than the books, was popular. Messrs. Chapman & Hall were about to prepare a book of this kind dealing with the adventures of a club of Cockney sportsmen. Seymour, the famous rival of Crulkschank, had been engaged to provide the drawings, and D. was asked to write the letterpress. He pleaded his total ignorance of sport, and the plan was then changed to that of the Pickwick Club. On the suicide of Seymour, the sporting element was entirely dropped, and with 'Phiz' (Hablot K. Browne) as illustrator, D. succeeded in making *The Posthumous Papers of the Pickwick Club* an immortal work. The introduction of Sam Weller marks the beginning of his success. From the advent of this character the monthly parts were awaited with feverish anxiety, and even the adverse *Quarterly Review* was compelled to admit that the whole reading world was discussing the Pickwickians. In 1837 the work appeared in book form, and in the same year the new novelist set to work on the grim satire of *Oliver Twist*. It may be noted that thus early in his career D. laid his hand to the 'novel with a purpose,' and that here, as always, he uses the method of gross caricature, making use of satire which ever remains too ludicrous to become ill-tempered, and which, however true the note of indignation may be, never loses sight of the humorous element. Here, too, appears the pathos, inclined to sentimentality, and the deep melodrama which was to be a stain, if an unavoidable one, on so much of his later work.

At the beginning of the year 1838, while *Oliver* was not yet half finished, D. began the pub. of *Nicholas Nickleby*, a picturesque story pub. on the same lines as *Pickwick*, and commenced writing *Barnaby Rudge*. Much of *Nicholas* is poor and melodramatic, but some of the sketches are only a little short of his highest work. Mrs. Nickleby, partly drawn from his own mother, is one of the best characters, and the sketches of Dotheboys Hall and the travelling theatre are also noteworthy. On the completion of this work (1839) D. started a weekly periodical to be known as *Master Humphrey's Clock*, where *Pickwick* and the *Wellers* are again brought to life. In this periodical began *The Old Curiosity Shop*. In spite of the highly complicated plot this is perhaps the richest mine of Dickensian characterisation. The humorous sketches of Dick Swiveller and his bizarre surroundings are unexcelled, but, in spite of Landor and Jeffrey, the overdrawn pathos of Little Nell is almost universally condemned by critics. *Barnaby Rudge* (1841), under the influence of Scott, appeared in the same publication. Here again the plot is complicated, and the work is also noteworthy as being, with the exception of *A Tale of Two Cities*, the

only one in which D. dealt with the past. *Master Humphrey's Clock* then came to an end, and in Jan. 1842 D. started on his first Amer. tour. He was received everywhere with acclamation, so that his visit became a veritable triumph. However, he deeply offended Transatlantic feeling by the pub. of *American Notes* (1842), and on his return home he satirised Amer. democracy far more freely and effectively in *Martin Chuzzlewit* (1844), which is generally regarded as his greatest humorous work since *Pickwick*. It closes the great period of his observation and external caricature. Henceforward, almost all of his good work is autobiographical. Here, however, his delineation of London, particularly at Todgers's, forms an incomparable work, with Pecksnuff, Mrs. Gamp, Betsy Prig, and the Literary Ladies. Melodrama is again present with *Jonas Chuzzlewit*. In 1843 appeared *A Christmas Carol*, and the next two years were spent in a visit to Italy.

At the beginning of 1846 he took up the editorship of a newspaper, the *Daily News*, but soon afterwards relinquished this uncongenial post, and returned to Switzerland, where he commenced *Dombey and Son*. This work, publ. in 1848, was a great success, and entirely re-established his fortunes. It marks, however, the beginning of his falling powers, and contains in the death of Little Paul the great monument of D.'s sentimentality. In 1849 appeared *David Copperfield*, favourite of D. and of most of his readers. The earlier portions are best, for here the autobiographical note is the stronger. In 1850 D. started a weekly paper, *Household Words*, designed to form a training ground for aspiring authors, which was later continued under the title of *All the Year Round*. In 1852 came *Black House*, where he satirises the Courts of Chancery. Though containing the figure of Harold Skimpole, drawn from Leigh Hunt, it is somewhat dull and uninteresting. Two years later came *Hard Times*, where D. violently opposes the industrial doctrines of the Manchester school. It is clearer and more connected than his predecessor, but does not rank high among his works. Between these two, in 1853, had been pub. the vol. of *Christmas Stories*, containing 'The Christmas Carol,' 'The Chimes,' and other short works written at various times. To these must be put down almost the whole of the conventional idea of the secular or mid-Victorian Christmas, which is peculiarly English and Dickensian. It is important to notice that D. was the creator of this type, for he is generally associated with descriptions of Christmas in every mind. From 1855-57 *Little Dorrit* appeared, and here the loss of the old animal spirits and the spontaneous humour is grievously marked. By this time D. had finally taken up his residence at Gad's Hill in Kent, and an improvement is shown in *A Tale of Two Cities* (1859), which is genuine and powerful tragedy. It is the least characteristic of all his works, and is appreciated by many who do not relish his other books. Two years later comes *Great Expectations*, which

Swinburne and many other critics have judged the best of his works. His own life again furnishes many of the incidents, but the most notable thing is the improvement in art. His mastery of the difficult art of sustaining an atmosphere is also shown in his next work, *Our Mutual Friend*, published in parts during 1864-65. In spite of brilliant effects of characterisation, as in the case of Silas Wegg, falling powers are shown here, and the work has never been a popular one. In 1867 D. made a second voyage to America under pressure of pecuniary difficulties. He made an exhausting tour through the country, giving readings from his popular works. His effort was successful, and he returned home sufficiently reimbursed to set him at ease. He then retired to Gad's Hill, where he engaged himself on *The Mystery of Edwin Drood*, a work which he left unfinished. He died at Gad's Hill on June 9, 1870. The letters of D. to his wife, which number 136, were donated to the British Museum in 1899 by Mrs. Perugini, a daughter of D., on condition that they were not to be pub. during the lifetime of any of the children of D. The death of Sir Henry D. in 1933 following a street accident, released the Museum authorities from this stipulation. The letters which are bound and available for public inspection, contain nothing to throw any light on the differences between D. and his wife. Other letters were ed. by Georgina Hogarth and Mamie Dickens (1882, 1893), and by W. Dexter (1938). See J. Foster, *Life of Charles Dickens*, 1872-74, 1923; G. K. Chesterton, *Charles Dickens*, 1906; Sir W. Robertson Nicoll, *Dickens' Own Story*, 1927; R. Straus, *Dickens, a Portrait in Pencil*, 1928; Sir H. F. Dickens, *Memoirs of my Father*, 1928; E. Wagenknecht, *The Man Charles Dickens*, 1929; Osbert Sitwell, *Dickens*, 1932; Una Pope-Hennessy, *Charles Dickens*, 1945. See also G. Gissing, *Charles Dickens: a Critical Study*, 1898; Sir J. A. Hammerton, *The Dickens Companion*, 1910; G. K. Chesterton, *Criticisms and Appreciations of the Works of Charles Dickens*, 1911; W. G. Wilkins (ed.), *Dickens in America*, 1911; J. W. T. Ley, *The Dickens Circle: The Novelist's Friendships*, 1919.

Dickens Fellowship. This was founded in 1902 to encourage the study and discussion of Dickens' works, and to help to remedy those social evils which would have provided subjects for exploitation by Dickens. It issues a monthly magazine entitled *The Dickensian*, the first editor of which was B. W. Matz, and his successor, Mr. Walter Dexter. Dickens' children, Sir Henry F. Dickens, K.C., and Mrs. Kate Perugini, were both life presidents of the Fellowship; while many eminent men and women of letters to-day are members of the society. The first offices were rented in Whitcomb Street, but after various moves, the Fellowship was finally estab. at 'The Dickens House,' 48 Doughty Street, W.C. 1, where once Dickens lived and wrote. The house was acquired by the Fellowship as a permanent Dickens Museum and Library.

and as such presented to the nation : it is vested in a trust in which the London Co. Council, the Corporation of London, and the D. F. all participate.

Dickinson, Emily (1830-86), Amer. poetess ; b. on Dec. 10, 1830, at Amherst, Massachusetts, of an old-established Massachusetts family, of original Yorkshire stock. Her father, Edward Dickinson, a lawyer by profession, was of stern, jealous disposition, and remained an abiding influence in E. D.'s life until his death in 1874. She was, however, much in sympathy with him. She was educated at the Amherst Academy and the Mount Holyoke Female Seminary, and in 1854 visited Washington and Philadelphia. Soon after this, however, she became a voluntary recluse, never, save on two occasions, setting foot beyond her garden gate, and her renunciation is commonly supposed to have been caused by her father's opposition to her marriage. Her lover is unknown, although legend has been busy with his name, but it is now almost certainly authenticated that he was George Gould, a theological student, who five years after Emily's renunciation married another, and in 1862 was ordained. Having a sensitive mystical nature, E. D. composed her poetry in secret, and its existence was all but unsuspected. After her death, May 15, 1886, a collection of manuscripts was discovered by her sister Lavinia, and some unfortunately destroyed. The remainder were pub. in 1890 and were an immediate success. Her poems are short epigrammatic lyrics which may be grouped under such heads as Life, Love, Nature, Death. The verse has an exquisite and unusual music, her rhythms and her sensitive manipulation of words are peculiar to herself, and these qualities are combined with a rare sensibility and an original mind. In her perception of life emotion was at once followed by a newness of thought. With Emerson, whom she resembled in method, E. D. ranks as one of the greatest Amer. poets of the nineteenth century. Her collective letters were pub. in 1894 and *Complete Poems* in 1925, ed. by M. Dickinson Bianchi ; *Further Poems* appeared in 1929. See M. Bianchi, *The Life and Letters of Emily Dickinson*, 1924 ; J. Pollitt, *Emily Dickinson*, 1930 ; G. Taggard, *The Life and Mind of Emily Dickinson*, 1930.

Dickinson, Goldsworthy Lowes (1862-1932), Eng. author, was the son of Lowes D., artist. He was educated at Charterhouse and at King's College, Cambridge, where he later became fellow and lecturer. He was also a lecturer at the London School of Economics and Political Science. His works include : *The Greek View of Life* (1896), *The Meaning of Good, a Dialogue* (1907), *Justice and Liberty, a Political Dialogue* (1908), *Appearances, being Notes of Travel* (1914), *The European Anarchy* (1916), *The Choice before Us* (1917), *War : its Nature, Cause and Cure* (1923), *The International Anarchy, 1904-1914* (1926), *Goethe and Faust* (with F. M. Stawell, 1928), *After Two Thousand Years* (1930).

Dicksee, Sir Francis Bernard (1853-1928), Eng. painter. Educated at Henslowe's school, London, and studied painting under his father and at the Royal Academy. Gained the gold medal of that institute for his 'Elijah confronting Ahab and Jezebel in Naboth's Vineyard', 1876. He became A.R.A. in 1881 ; R.A. in 1891 ; and P.R.A. in Dec. 1924—when he was knighted. He belonged to the symbolic school of painters, and combined skilful draughtsmanship with subdued and tasteful colouring. Among his best works may be included 'Evangeline', 'The Symbol', 'Romeo and Juliet', 'Funeral of a Viking', 'The Magic Crystal', 'Paolo and Francesca', 'The Passing of Arthur', 'La Belle Dame sans Merci', and 'The Ideal'.

Dickson City, city of Lackawanna co., Pennsylvania, U.S.A., situated on the Lackawanna about 3 m. N.E. of Scranton in the anthracite region. Pop. 11,500.

Dickson-Poynder, Sir John, see ISLINGTON, BARON.

Dicotyledons, as distinguished from monocotyledons, constitute one of two large classes into which flowering plants are divided. One characteristic, from which the name is derived, is the presence of two (rarely more) cotyledons in the germinating seed. D. are subdivided into (1) Monochlamydeae, the members of which have flowers with a sepaloïd perianth or absent altogether, and often unisexual : to this belong the Urticaceae, Amentaceae, and other orders ; (2) Polypetalae, in which the flowers are hermaphrodite (i.e. contain both stamens and pistil), the perianth usually consists of calyx and corolla and the petals are free from one another ; (3) Gamopetalae, with hermaphrodite flowers, and petals joined.

Dictamnus Fraxinella, see DITTANY.

Dictaphone, see TALKING MACHINES.

Dictator (Lat. *dictare*, to command), the title given to an official of the Rom. republic whose earlier title was *Magister populi*. The office, as the earlier title suggests, was originally instituted in times of military crisis ; the first D. was appointed in 501 B.C., according to Livy, on account of a crisis in the war with the Latins. It was a temporary revival of the power of the kings with some limitations. One of the conditions usually enforced was that a D. should previously have held the office of consul. He was to be nominated by a consul, although in later practice it was the senate who indicated the nominee. To emphasise his superiority over the consuls, the D. was preceded by twenty-four lictors, instead of twelve, bearing the *fascies*. In a later period the appointment of a D. was not only practised in times of military stress, but of constitutional crisis as well, and for criminal jurisdiction ; this was the 'administrative' D., and he held his office for six months. Ds. appointed for minor purposes, to hold the elections, to conduct the games, and to preside at the festivals, were expected to resign their office as soon as they had completed their business. The other officers were not suspended when a D. was appointed ; they simply became subordinate to him and continued their

duties as his officials. In early times the D. had absolute power over the life and death of the citizens, but that power was limited by the *Lex Valeria* (300 B.C.). From the beginning his absolute power was checked by his being compelled to apply to the senate for money, and by having no authority outside Italy. Originally the office was confined to the patricians; C. Marcus Rutilius was the first plebeian elected in 356 B.C. The last regular D. elected was M. Junius Pera in 216 B.C. The office, as revived by Sulla in 82 B.C., was only similar in its bestowal of almost absolute power. He had himself elected 'for the estab. of the Republic,' and he held the office for three years. The dictatorship of Julius Caesar was even less provisional and constitutional. In 48 B.C. he was appointed for one year, in 46 B.C. this period of office was extended for ten years, and in 45 B.C. for life. After his death the office was abolished by Marcus Antonius in 44 B.C. In later times the title and powers of Ds. have been seized by usurpers and the heads of revolutionary movements, notably in the S. American States, in Haiti, San Domingo, and Mexico. It might have been thought that the steady advance of democracy along constitutional lines in general, and the particularly marked advance throughout the nineteenth century, would have precluded the possibility of the reappearance of any individual in the shape of a D. to bless or burden mankind. Yet such is the uncertainty in human affairs and so often does history repeat itself, that in Europe the period between the First and Second World Wars may justly be known as the age of the Ds. In 1922 Mussolini rose to supreme power in Italy and Mustafa Kemal in Turkey. Mussolini's example was followed in Spain by Primo de Rivera who set up a military directorate in 1923 with himself at the head. In Soviet Russia, on the death of Lenin, one chief power passed to Stalin, and it was largely by exploiting the fear of Bolshevism in W. Europe and appealing to an exaggerated nationalist sentiment that the two most powerful Ds.—Mussolini in Italy and later Hitler in Germany—consolidated and maintained their power. Lesser Ds. of the period were Marshal Pilsudski in Poland, Dollfuss in Austria, and Adm. Horthy in Hungary. The Fascist and Nazi dictatorship of Italy and Germany were swept away by the Second World War, and of the dictatorships set up on the same model before the war the rule of Gen. Franco in Spain alone survived. For further information, see separate articles under the names of those mentioned. See J. A. R. Marriot, *Dictatorship and Democracy*, 1935; A. Kohn, *Revolutions and Dictatorships*, 1939; *Essays in Contemporary History*, 1941.

Diets, mt. in Candia or Crete, one of the largest is. in the Mediterranean. The mts. of this is. are composed principally of free-stone or marble.

Dictionary, properly and most usually, a book containing a list of the words of some language arranged in definite order, usually following the alphabet, together

with explanations of these words. The term, however, has been generally applied to any work which professes to communicate information on an entire subject or entire branch of a subject, under words or heads arranged in alphabetical order. This alphabetical arrangement appears to be one distinctive mark of a D.; but it is also necessary that there should be some explanation or interpretation added to the words so arranged. Thus an index, in which words or titles are merely put down in alphabetical order, with nothing more than a reference to some page or passage appended to each, is not a D. When the phrase is actually quoted instead of a reference being given, the work is called a concordance. Further, although the order and arrangement of a D. be arbitrary, the work must profess some unity and completeness of design. As has been said, it must profess to go over a whole subject, or field of knowledge, of greater or less extent. Thus a mere list of miscellaneous particulars, even with explanatory remarks or comments annexed, is not a D., but a catalogue. A collection of plays or of pamphlets might be arranged in the order of the alphabet, but it would not on that account make a D. The earliest D. of which any portions are extant is *Δεξις* the *Onomasticon*, or Homeric Words, a lexicon to the works of Homer, written, according to Suidas, by Apollonius the sophist. Julius Pollux in the second century prepared an *Onomasticon* or Gk. D., with the words arranged in order of meaning. The most famous Gk. D., however, is that of Suidas (fifth century), giving an alphabetical list of words with details and illustrative quotations. It was first pub. at Milan in 1499. The first attempt at constructing a complete Arabic D. was made by Khalil ibn Ahmed of Oman about the middle of the eighth century, and his successors carried on his work till the end of the Middle Ages. Ds. of a kind are found in Sanskrit several centuries B.C., and special Ds. as well as literary compilations are also found in certain parts of the E. In Lat. lexicography, the earliest works of importance are those by M. Terentius Varro and the compilation of Pompeius Festus entitled *De Significatione Verborum*. In the eleventh and following centuries, note should be made of the D. of Papias, and the *Catholicon* of Giovanni Balbi. In the sixteenth century appears the first polyglot D. of Colepino, which in its later editions included eleven languages. The great classical Ds. of the present day are:—Greek: Liddell and Scott's *Lexicon* 8th ed. (1897); Pape's *Wörterbuch der Griechischen Eigennamen* (1845–50); Thayer's *Greek-English Lexicon of the New Testament* (1887); Thayer's revision of Sophocles's *Lexicon of the Roman and Byzantine Periods* (1870), and Contopoulos' *Modern Greek-English and English-Greek Dictionary* (1868); Latin: Doct's ed. of the *Totius Lexicon Latinitatis* (Trato, 1858–79); White and Riddle's *Latin-English and English-Latin Dictionary* (1862); Georges' *Deutsch-Lateinisches und Lateinisch-Deutsches Wörterbuch* (1880–1885); and the great work of the German

universities, the *Thesaurus Linguae Latinae* (1900-13). For Medieval Lat. recourse must be had to Du Cange's *Glossarium ad Scriptores Mediæ et Infimæ Latinitatis* (1772-84). Ds. have sometimes been divided into three main classes or descriptions: (i.) Ds. of words; (ii.) Ds. of facts; (iii.) Ds. of things; and although objections may be lodged against this method of distribution, it is sufficiently convenient for practical purposes.

1. *Dictionaries of Words*: This, as we have seen, is the original application of the word D., and the sense in which it is commonly understood when it stands alone. In this sense the word corresponds to the Gk. 'lexicon,' a word which seems to have been used by the Gks. in the modern sense. Some Ds. and vocabularies apply only to some particular author and work. The *Δέξας Ομηρικάς*, already referred to, was of this kind, and the Gk. classics have been well treated individually. Ds. of this kind usually confine themselves to the more difficult and unusual words, and are called *glossaries*, e.g. Tyrwhitt's *Glossary to Chaucer*, and the various Shakespearian glossaries.

2. *Dictionaries of facts*: This class comprehends Ds. of hist., biography, mythology, geography, archaeology, and all others that deal exclusively with things that have happened, or with facts that exist or have existed. Some of the old Gk. lexicons were Ds. of facts as well as of words: the lexicon of Suidas, for instance, is in the greater part made up of fragments of biography, hist., and geography, and often contains large extracts from various writers both extant and lost. The work of Stephanus Byzantinus, known as *Ἔθνη* or *Ἱστορίαι*, is chiefly a geographical and archaeological D., and is the oldest compilation of that description that exists. Its meagre details under each head assimilate it in some respects to an imperfect gazetteer. In modern times the number of Ds. that have appeared, purporting to give a view of a more or less extensive field of facts, has been very great. Besides the various historical, biographical, and geographical Ds., general and particular, and the bibliographical Ds., there are Ds. of antiquities, of architecture, of heraldry, of painting, of music, of botany, of law, of legal decisions, of commerce, of medicine, of surgery, of miracles, of dates, and of almost every other department of human knowledge.

3. *Dictionaries of things*: This division comprehends Ds. of all the abstract sciences, the mixed or applied sciences, the departments of criticism and the fine arts, and the whole range of metaphysical and moral speculation. It is true that most of these subject cannot be treated of without a reference to facts, but the facts here are not viewed simply as such, but either as subordinate to principles, or as modifying their operation. The remainder of this article will deal with the first class of Ds., and in these, in particular, much progress has been made during the century past. The present tendency towards completeness has led to the larger Ds. assimilating many of the peculiar

features of the smaller ones. Ds. dealing with equivalent words in different languages are generally small, since they are intended for beginners and details are few. Similarly, for convenience of reference, Ds. of synonyms, homonyms, etc., are generally kept distinct from the large works. The improvement of these works of reference has been particularly full and rapid in Great Britain. Progress is first seen in the idea of the aim of the work, and this may be seen by comparison with the works of the seventeenth century. The aim of Johnson's D. (1755) was to provide a final authority as to what words were admissible among correct writers and what meanings they were to bear. The lexicographer constituted himself the supreme arbiter in such questions. This idea continued to dominate Eng. lexicography until the time of Archbishop Trench, who was the first to apply sound philological principles to the subject and to emphasise the fact that the lexicographer must be, not the critic, but the historian of the language. The present conception of a D., which is finding its greatest expression in the *New English Dictionary*, has this philological aim in view of giving a full account of all words used in English from the middle of the twelfth century, a point fixed as the starting point of New Eng. It gives a historical survey of the changes of meaning which words have undergone, with quotations from writers of all times. It definitely originated from the suggestion of Archbishop Trench that some such work should be undertaken by the Philological Society, and its full title is the *New English Dictionary on historical principles, founded mainly on materials collected by the Philological Society*. The work was commenced under the editorship of Herbert Coleridge, who was succeeded by Dr. F. J. Furnivall. The publication was not commenced, however, until 1884, when the work began to issue from the Oxford Univ. Press under the editorship of Dr. (afterwards Sir) J. A. H. Murray. It was completed in 1928, and a corrected re-issue with introduction, supplement, and bibliography in 1933. The *Shorter Oxford Dictionary* by W. Little, H. W. Fowler, and J. Coulson, ed. by C. T. Onions, appeared in the same year. Great stress is laid on the etymological side of such a work, and in this department great accuracy has now been attained. The other dept., that of quotation, was already recognised by Johnson, though its use apart from the historical method is by no means so great. Since the great value of quotation is to show the various shades of meaning which may be given to a word by different writers at different times, and since etymology now gives a short history of a word from its first use to its last, it follows that the ideal can only be completely realised in a work of vast size and with a vast initial expense. It has, in fact, only been attained in the D. we have just discussed. The great pioneers of philological science were the first to introduce etymology into Ds. The introduction dates from 1854, when Jacob and Wilhelm

Grimm published the first vol. of the *Deutsches Wörterbuch*. Its main application in France was in E. Littré's *Dictionnaire de la langue française*, 1863-72, which was followed by various dictionaries, which might more properly be termed encyclopædias (*q.v.*) from the house of Larousse. Among other notable Eng. Ds. pub. in England may be mentioned Wyld's *Universal English Dictionary*, Skeat's *Etymological Dictionary* and reliable publs. by Chambers, Nuttall, Dent, Collins, Blackie, and Murray. In the U.S.A. the first D. of importance was Noah Webster's *American Dictionary of the English Language*, pub. in 1828. An outstanding philological D. was Whitney's *Century Dictionary* in 6 vols., 1889-91. Amer. Ds. in general use to-day are Webster's *New International Dictionary*, the *Standard Dictionary*, and, particularly for younger users, the *Thorndike Century Junior Dictionary* and the *Winston Simplified Dictionary*. See M. M. Matthews, *A Survey of English Dictionaries*, 1933.

Dictys Cretensis (of Crete), a native of Chios who is reputed to have followed Idomeneus to the siege of Troy and to have written an account of it. Lucius Septimius in the fourth century pub. an *Ephemeris* of the *Trojan*, which purports to be a lat. trans. of the (Gk. of Dictys. See N. E. Griffin, *Dares and Dictys*, 1907.

Didactic Poetry (Gk. διδακτικὴ = to teach) is poetry which openly expresses its intention of conveying knowledge or instruction. Aristotle considered that a didactic poem was no more than a treatise; but there are so many degrees of didacticism in poetry that while most didactic poems are very inferior as poetry some are great in spite of the didactic element, e.g. *Paradise Lost* is didactic in so far as it sets out with the dogmatic aim, 'to justify the ways of God to man.' The majority of notable Eng. didactic poems have a theological aim, e.g. the *Pæerie Queens*, which is essentially a vindication of Protestantism and Puritanism; and much of the poetry of Cowper, who fancied that the vehicle of verse might bring many to listen to truths (as he held them) which they would be disinclined to have stated to them in simple prose, is directed to theological tenets. The same poet's *Tirocinium* or *Review of Schools*, is yet more obviously didactic, being written to 'recommend private tuition at home.' Shelley again, in his more didactic poems, e.g. *Rosalind and Helen*, teaches that all the world is evil and will continue evil until some unknown conqueror shall appear and reform all evil. Thus poetry of very varying merit may be in greater or less degree didactic; but in a more restricted sense D. P. is rather that in which the precepts or teaching are not merged in exalted flights of poetic imagination but are set out dogmatically, as e.g. Tusser's (*q.v.*) *Five Hundredth Poyntes of Good Husbandrie* etc. In anct. poetry, the *De Herum Natura* of Lucretius (*q.v.*), a didactic poem on Epicurean philosophy, is the D. poem *par excellence*; and the *Georgics* of Virgil are also replete with precept, the Third Georgic containing prac-

tical precepts for farmers, and the Fourth giving much information about bees; but in both poets, though far more markedly in Virgil, the teacher is often dropped by the poet for the natural philosopher, speculating on the hidden reason of nature's operations. Bagehot, voicing the common opinion, thought that it was not the object of poetry 'to chill you with didactic icebergs,' but rather to select, idealise, purify and intensify the great features and peculiarities which make society as a whole 'remarkable and fancy-taking.' As poetry, D. P. is often commonplace, the matter not lending itself to the mode of expression which most appeals to the true poet, e.g. the precepts of the Ger. Minnesänger, Walther von der Vogelweide (*q.v.*) and Wolfram von Eschenbach, are often, in spite of the excellent moral lessons inculcated, told satirically.

Didcot, vil. of Berkshire, England, 4½ m. S. of Abingdon; an important railway junction and an Ordnance depot. Pop. 2000.

Didelphis, see *MARSUPIALS*.

Didelphys, see *OPPOSSUM*.

Diderot, Denys (1713-84), Fr. 'savant' and author, b. at Langres in Champagne. He was educated at the Jesuit College at Langres and the Collège d'Harcourt at Paris. He was intended for the Church, but on his expressing a distaste for it he was placed with a procureur in Paris to study jurisprudence. Evincing an equal distaste for the law, and refusing to return to his father's home, he was left in Paris to live by his wits. He tried many occupations, but continued at none—only defying starvation with his pen. He wrote anything and everything, indices, catalogues, advertisements, sermons, and trans. from Eng. His first important original work was *Pensées philosophiques* (1746) in which he set forth the doctrine of the band of free-thinking philosophers who arose at this time of reaction against the tyranny of the Church; the doctrine which he summed up in his own dying words: 'The first step towards philosophy is incredulity.' For his next work, *Lettre sur les aveugles*, he was imprisoned at Vincennes by order of the gov. On his release D. collaborated with D'Alembert as editor of a *Universal Medical Dictionary*, a scheme which later grew into the *Encyclopédie, ou Dictionnaire Raisonné des Sciences, des Arts, et Métiers*. The work was enormous, and owing to the retirement of D'Alembert, D. was sole editor for the greater part of the time. The first vol. was published in 1751, and the remaining sixteen, as well as eleven vols. of plates, in the years between 1751 and 1765. He embodied in his encyclopædia the philosophy which he had foreshadowed in the *Pensées philosophiques*, the dreary, rebellious philosophy of Atheism and revolt, a reaction against Jesuit predominance in the Church and tyranny on the throne, which he shared with his friend and great contemporary, J. J. Rousseau, and which was to lead to the Revolution. Among D.'s other works were the *Essay on Painting*, trans. and praised by Goethe; *Lettres sur les sourds et muets* (1751), *Pensées sur l'interprétation*

de la Nature (1754), *Code de la nature* (1755), the tales of *Jacques le Fataliste* (inspired by Sterne, 1897), and *Le Neveu de Rameau* (1805), the finest of his imaginative productions. This latter is a didactic novel profoundly criticising human nature and social life. *Les Bijoux Indiscrets* (1748), an extreme example of the coarser style which he sometimes affected; *La Religieuse* (1797), a novel directed against convent life; *La Promenade du sceptique* (1747); *La Révé d'Alembert* (c. 1755, not issued till 1830), *Lettres* to his mistress, Mlle. Voland, and his last work, *Essai sur la vie de Sénèque* (1778). The *Salons* (pub. posthumously), descriptions of the exhibitions of 1764-67, gave a strong impulse to art criticism in general, by establishing relations between art and literature, which previously had been largely dissociated. D.'s literary significance does not depend on any great work or works, but upon his versatility and universality and on that account he is of the highest importance in the hist. of eighteenth-century literature. In his last years he sank into a state of extreme poverty. Catherine of Russia, to relieve him, bought his library, but appointed him custodian and paid him fifty years' salary in advance. In 1773 D. visited St. Petersburg to thank the empress and returned to Paris only twelve days before his death. Collections of D.'s works were published by Nalgeon in 15 vols (1798), reprinted in 22 vols. (1821), and by J. Assolzat and M. Tourneux in 20 vols., 1875-77. See H. de Sainte-Beuve in *Portraits littéraires*, 1844; J. Morley, *Diderot and the Encyclopedists*, 1886; A. Collignon, *Diderot, sa vie, ses œuvres, sa correspondance*, 1895; J. Le Gras, *Diderot et l'Encyclopédie*, 1928; A. Billy, *Vie de Diderot* (with bibliography), 1943.

Didius Salvius Julianus, grandson of Salvius Julianus; reigned for only two months as emperor of Rome after Pertinax in A.D. 193. Distinguished in his earlier years for his industry and zeal. He won the throne of Rome through bidding the highest to the praetorian guards; the people would not brook this insult, and D. was eventually executed.

Dido, or **Elissa**, according to legend, was the daughter of Belus, king of Tyre, and the sister of Pygmalion, her successor. Pygmalion having murdered her husband, Acrabus or Sicheus (see Virgil), D. escaped with his treasures to Cyprus and thence to N. Africa, where she founded Carthage (Byrsa) on a piece of land bought from Iarbas, king of Libya. To escape from marriage with Iarbas, she built a funeral pyre and stabbed herself before her people. The version given by Virgil in the *Aeneid*, that D. stabbed herself after her desertion by Aeneas, the hero of Troy, is an anachronism, for three hundred years intervened between the legendary fall of Troy and the founding of Carthage.

Didon, Henri (1840-1900), Fr. preacher belonging to the Dominican order and influenced by his relations with Lacordaire and the theology of Aquinas. This influence was shown in his enthusiasm for a

reconciliation between philosophy and science. He was appointed to preach the funeral sermon over M^{onsieur} Darboy, the archbishop of Paris, who was murdered in 1871. His lectures on religion and science in Paris brought him into suspicion, and he was suspended, and had to seek retirement in Corsica. His most popular work was *Jésus-Christ*, pub. in 1890, and was the outcome of his visit to the Holy Land.

Didot, François (1689-1757), founder of a family of famous Fr. printers. Started in trade as bookseller and printer in 1713, and noted for his collection of the travels of the Abbé Prévost in 20 vols. (1747). *François Ambroise* and *Pierre François* made significant improvements in the arts of type-founding and paper-making. *Henri D.*, son of Pierre François, was celebrated for his microscopic eds. *Pierre D.*, son of François Ambroise, noted for his Louvre eds. of Virgil, Horace, and Racine. *Firmin D.* (1764-1836), his brother, distinguished as printer and type-founder, improving the point system of type sizes, which still bears his name (*Système Didot*); he also discovered the process of stereotyping, and published stereotyped eds. of the classics at a very reasonable sum. Other printers of note are his sons Ambroise Firmin (a Gk. scholar), and Hyacinthe, who worked together after their father's death. The former left a collection of MS. valued at two million francs.

Didsbury, tn. of Lancashire, England, situated on the Mersey. It is about 5 m. S. of Manchester, and forms a residential suburb for many Manchester people. Pop. 15,000.

Didymium, name given to a mixture of the two chemical elements *neo-didymium* and *praseodymium* before its dual nature had been ascertained.

Didymotichon, formerly called **Demotika**, tn. of Thrace, Greece, near the R. Maritza and the Sofia-Constantinople rly. Pop. 8200.

Didymus, (c. 63 B.C.-A.D. 10), Alexandrine grammarian and scholar; taught at Alexandria and then at Rome. Wrote many articles upon the Gk. poets and prose writers. His commentaries upon phrases and obscure words are helpful to students and grammarians.

Die, see **DROME**.

Diebitsch-Zabalkanski, Hans Friedrich Anton, Count von (1785-1831), Russian general. Made commander-in-chief of the Russian army, 1829. Chiefly famed for his passage of the Balkans, for which he received the titles of field-marshal and Count Zabalkanski.

Dieburg, tn. of Hesse, Germany, 8 m. N.E. of Darmstadt. Pop. 7000.

Diedenhausen, see **THIONVILLE**.

Diefenbach, Lorenz (1806-83), Ger. scholar, b. in Ostheim. Wrote an important work on Celtic origins called *Celtica* (1839-40), compiled the famous Lat.-Ger. *Glossarium Latino-Germanicum Medicæ et Infimæ Aetatis* (1857), a supplement to Du Cange's glossary (see *under* **DICTIONARY**); also a *Hoch-und-Nieder-deutsches Wörterbuch* (1885).

Dieffenbach, Johann Friedrich (1794-1847), Ger. surgeon, b. at Königsberg in Prussia. First studied theology, then became a volunteer. Finally entered the medical profession, and became one of the most famous surgeons of the day; was appointed prof. of medicine in the Univ. of Berlin (1840); was particularly successful in the art of forming new noses, lips, etc.

Diégo Garcia, is. dependency of Mauritius, in the Oil Is. group, in the Indian Ocean, in 7° 20' S. lat., and 72° 26' E. long., about 12 m. long by 6 m. wide. Has a good harbour and exports coconut oil, coconuts, copra, guano and salted fish. A large proportion of its 500 inhabs. are labourers from Mauritius. Lying, as it does, on the direct route from the Red Sea to W. Australia it is proposed to equip it as a calling place for a Commonwealth Reserve Air route. During the 1939-45 war its excellent anchorage was used as a refuelling base for naval vessels.

Die-hards, nickname in English politics which became current towards the end of 1918, when the Coalition Gov. under Mr. Lloyd George began to show signs of internal dissension, and to break up once more, as the electorate was already doing, into separate parties. Many Conservatives refusing their own present strength, desired to return to the original party system. The proposal to set up an Irish Free State with a Parliament in Dublin, revived many old controversies, and the extreme section among the Conservatives became more urgent in their demands for separation. At first the leaders of this movement were few in number and small in influence, and they were called D. almost in derision. But gradually their influence increased until at an important party meeting they found themselves to be in a majority of nearly three to one. The Coalition Gov. ceased to exist, and Mr. Lloyd George was succeeded in the premiership by Mr. Bonar Law.

Dielectric, or **Insulator**, according to Faraday, is the name given to those substances through which electrostatic induction takes place. When one body attracts another, viz. a molecule of dust, the action which takes place is called induction, and the intervening medium in which the action occurs is called the D. There are two kinds of D., the one is gaseous and includes air and all gases, the other is solid and includes such substances as glass, silk, vulcanite, resin, mica, and gutta-percha. Brass and all metals are good conductors of electricity, while porcelain, marble, slate, and stoneware are such bad conductors that they are used for insulating telegraph and telephone supports, or the bases of switchboards or stands, etc. In the same way the softer substances, silk, gutta-percha, and India-rubber, are used for insulating telegraph and telephone wires, or coils and wires in other electrical apparatus. The inductive effect of a given charge depends upon the D. surrounding the charged body, and the result obtained is called the specific inductive capacity. When hot, the power of a body is always diminished. Although air

is a D., should an electric spark pass through it, its insulating power at once breaks down, and it ceases to act as a D. In the same way solid Ds. lose their solidity and become cracked, if touched by an electric spark.

Diemen, Van, see VAN DIEMEN.

Diepenbeek, Abraham van (d. 1675), Flemish painter, b. at Bois-le-Duc either in 1596 or 1607. He became a pupil of Rubens, and afterwards studied in Italy. His drawing is sometimes defective, and his work is, at its best, but an imitation of Rubens; a copy of Rubens' 'Descent from the Cross' is D.'s finest work. He also illustrated Marolle's *Tableaux du Temple des Muses*.

Dieppe, seaport of France, in the dept. Seine-Inférieure, standing on the English Channel, 33 m. N. of Rouen. The tn. has a certain picturesqueness, with its high-roofed houses, and its streets running in lines parallel to the sea. Its castle used in modern times as a barracks, and the Church of St. Jacques date from the fourteenth and fifteenth centuries. The chief manufs. are cotton goods, lace, tobacco, and machinery. Shipbuilding is also carried on, and there is a regular service of steamers between this town and New-haven. The oyster culture and herring and mackerel fisheries are important. In normal times 800,000 tons of shipping enter and leave the harbour annually, which can berth 200 ships besides fishing-boats. It was a Protestant stronghold, but lost its importance after the Revocation of the Edict of Nantes in 1685. The tn. was the scene of fighting during the Second World War, notably during the Dieppe Raid (q.v.) of 1942. During the Ger. occupation it was bombed on a number of occasions, particularly in April and May 1944 before the Allied invasion of France. The tn. was eventually liberated on Sept. 1, 1944, by the Canadian First Army which was welcomed enthusiastically by the inhabitants after the Gers. had withdrawn. The port and installations suffered from bombing during the war and were partly demolished by the enemy before their retreat, but the tn. was not on the whole seriously damaged. Pop. 26,000.

Dieppe Raid, combined operations raid, carried out on the night of Aug. 18-19, 1942, by a force of 5,000 Canadian troops, a detachment of Amer. Rangers and some Brit. commando troops, embarked in naval vessels and transports and protected by warships and by a continuous fighter-plane 'umbrella' of the R.A.F. Its main purpose was to get information about the Ger. defences in the W. and on conditions to be expected in a large-scale assault on a strongly held Channel port. It was also hoped to compel the Ger. air force to give battle and thus to divert Ger. fighter-planes from the hard-pressed Russian front. Among the essential objectives were two powerful batteries of 5.9 c.m. defence guns at Berneval on the E., and at Varangeville on the W., of Dieppe, and a radiolocation station which played an important part in the Ger. attacks on Brit. channel convoys. The

most elaborate plans were made in advance, even to constructing models of the coastline with details gleaned from aerial photographs. The plan finally adopted was for landings to be made at over half a dozen points, preceded by a brief intense naval bombardment, followed by an attack of cannon-firing Spitfires and Hurricanes on the main defences. Tanks were to be put ashore to support the infantry in holding the garrison, while the selected objectives were being destroyed. The naval escort consisted of seven Brit. and one Polish destroyer and several motor gunboats and launches. But the raid did not go 'according to plan,' though it was by no means unsuccessful. The approach to the Fr. coast was betrayed through the ships running at 3.45 A.M. into some enemy armed trawlers, which, soon reinforced by other enemy ships, opened fire. The Brit. commander, however, decided to go through with the raid. Several craft disembarked men near Berneval in broad daylight, nearly 30 minutes late, and at once came under heavy fire. One commando made a sustained effort to destroy the heavy battery at Berneval but, being outnumbered, had at length to withdraw. At Varangeville, however, the assault parties succeeded—with mortar fire and aided by concentrated low-level attack by Spitfires, followed by a bayonet charge—at 7 P.M. in blowing up all six guns of the battery, but at great cost in casualties. For this exploit Capt. Porteous, who led the charge, was awarded the V.C. Despite heavy opposition, landing forces destroyed one other battery and the radiolocation station, besides inflicting heavy losses on the enemy and bringing away some prisoners. The assault on Dieppe itself was made by the Essex Scottish Regt. and the Royal Hamilton Light Infantry, but when they landed they at once came under fierce frontal and enfilade fire and numerous casualties were suffered by both regts. The twenty-eight tanks which were landed silenced the defences in places but could not give adequate support, since the anti-tank defences had not been overcome by the naval and air bombardment. The famous Canadian regt., the Fusiliers Mont Royal, came in as reserves, to reinforce the Essex Scottish, but they too suffered heavy losses, after getting ashore near the Casino, which, however, was taken. Pourville was taken by the S. Saskatchewan Regt., which unit accounted for many of the enemy. While the prin. objectives of the air operations was to support the landing parties, there in fact developed a great air battle. Between dawn and dusk Brit. aircraft destroyed 93 Ger. aircraft (including 43 bombers); a further 44 were probably destroyed and another 148 damaged. There is evidence to show that the Ger. loss may have been 170 machines. The Brit. loss was 98 planes. The results of the raid were of the highest importance but were purchased at a high price in lives. Of 5,000 Canadian troops engaged 3372 were killed, wounded or missing. The twenty-eight tanks were blown up by the Brit. forces before they re-embarked

nine hours after landing. See A. B. Austin, *We Landed at Dawn*, 1943.

Dierx, Léon (1838-1912), Fr. poet, who is chiefly noted for the following works: *Poèmes et poésies* (1864), *Œuvres choisies* (1867), *Poèmes d'un vaincu* (1871), *Poésies complètes* (1872). His *Oeuvres* were pub. in 2 vols. (1894-96).

Diesel Engine, internal combustion engine, using heavy oil as a fuel and introduced by Rudolf Diesel in 1897. Subsequently developed in various types by many engine manufacturers. It differed from earlier internal combustion engines in the method by which the fuel was fed into the cylinder. In gas and petrol engines the fuel was drawn into the cylinder during the suction stroke as a combustible mixture with the air; but in the D. E. the fuel was injected separately at the end of the compression stroke and no sparking plug or other ignition was necessary. The D. E. greatly increased the range of liquid fuels which could be used in internal combustion engines. See further under INTERNAL COMBUSTION ENGINE; MOTOR; RAILWAYS.—*Diesel Locomotives*.

Diesel, Rudolf (1858-1913), Ger. engineer, b. at Paris; prof. at Munich, inventor of the diesel engine—an internal combustion engine using heavy oil as fuel. He disappeared from a Harwich steamer while travelling to London.

Die-sinking, used in the process of stamping an impression on coins or medals. The steel to be engraved for the die is at first carefully prepared and then subjected to a process which softens it. It is next given over to the engraver, who, by means of small hard implements of steel, cuts the design which he requires, and which must be a reversed one. When this is finished it has to be subjected to another process which makes it extremely hard. It is then ready for use, and is known as the matrix. As, however, the process of engraving is very expensive, it is seldom that the matrix is used for the actual stamping process. Instead of this the impression is produced by considerable pressure in relief on a block of soft steel, which is known as the puncheon. The latter has to be hardened and it can then be used for conveying the design engraved on the matrix. Dies are also used in the manuf. of many other articles, as well as coins or medals. They are used in the manuf. of jewellery, such as clocks and watches, and also in stamping ornaments. The art of engraving dies dates from very early times, and very many ant. Gk. coins, which have been stamped in this way, are still preserved.

Dies Irae (Lat. Day of Wrath), a Lat. hymn on the Last Judgment (so called from its first words, based on Zeph. i. 14-18), composed by Thomas of Celano (d. 1255), a friar belonging to the order of St. Francis. This hymn was inserted by the Council of Trent as the sequence in the Requiem Mass. There are sev. Eng. trans. besides a paraphrastic rendering in Scott's *Lay of the Last Minstrel*. It is also the subject of a number of musical compositions, notably that by Berlioz in the *Symphonie Fantastique*.

Diest, tn. in Belgium, in the prov. of Brabant. It stands at the junction of the Rs. Demer and Bever. The duke of Marlborough took the tn. in 1705. There are numerous breweries. Pop. 9000.

Diet (Lat. *dies*, a day), term originally applied to a session or sitting of a body of delegates or dignitaries, and afterwards transferred to the bodies themselves. The word applied to both legislative and ecclesiastical meetings, hence the phrase 'diet of worship.' Compare also the famous 'Diet of Worms' held in Luther's time. Now the word is applied to assemblies held by the Ger. parliament.

Diet, the food of an individual considered as a whole particularly with regard

its nature to satisfy the physical needs of the inmates, but at the same time a certain degree of austerity is considered desirable, so as to minimise the attraction which might be felt by individuals disinclined to work for food.

The nutritive constituents of food are classified as proteins, fats, carbohydrates, water, mineral salts, and vitamins. There is no single article of food which contains all of these. *Proteins* are complete chemical compounds present in all living matter, and include such nitrogenous substances as form the body tissues. The chief are albumin (in white of egg), myosin (in meat), casein (in milk), globulin and fibrin (in blood), and gluten



Lucy Burdakin

Wm. Heinemann (Medical Books) Ltd.

TWENTY-FIVE CALORIES (APPROXIMATELY) IS YIELDED BY EACH OF THESE ARTICLES

Lettuce	Milk, 1½ oz.	Potato, 1½ oz.	Rhubarb, 19 oz.
Orange, 3 oz. (approx.)	Apple, 2½ oz.	Rice, ½ oz.	Banana, 1½ oz.
	Tongue, ½ oz.	Hazelnuts, ½ oz. (approx.)	
Cucumber, 9 oz.	Cheese, ½ oz.	Chocolate biscuits (2)	Sugar, 1 oz. (2 small lumps)

to its efficiency in maintaining the nutrition of the body. A *dietary* is an organised system of taking food, the various constituents, their amounts, and time of eating being established beforehand. *Dietetics* is a branch of medical science which deals with the composition of various foods and their effect upon the body. A dietary may therefore be established as part of the treatment of some morbid condition. This is particularly important in such diseases as diabetes where some constituents of ordinary food are likely to have a harmful effect owing to the disturbed metabolism of the body. In obesity satisfactory weight reduction may be achieved by a knowledge of food composition and the requirements of the body. In institutions, such as prisons and local assistance institutions and in public services, such as the army and navy, dietaries are necessary if only to regulate the actions of the officials immediately concerned in the distribution of the food supply. In prisons and local assistance institutions, the D. is dependent upon considerations of economy, efficiency, and discipline. The food must be sufficient in quantity and in

(in flour). First-class proteins are from animal sources: milk, cheese, eggs, meat, fish, etc., and second-class proteins are of vegetable origin: peas, beans, lentils, potatoes, etc. Of the protein necessary daily, 50 per cent. (about 1½ oz.) should come from 'complete' (animal) protein. Nuts also contain 'complete' protein. Protein must never be withdrawn from the diet for long, but the ration may be reduced to moderate proportions with beneficial results. Growing children and manual workers, however, require a larger amount of protein in their diet. *Fats and carbohydrates* supply the energy for the carrying on of vital processes. *Fats* include all animal fats such as suet, dripping, lard, bacon-fat, butter, cream, etc.; vegetable fats from olive oil, cotton-seed oil, nut butters, and margarine; and fish fats such as cod-liver oil, halibut oil, etc.

Mineral oils, as petroleum emulsions, though useful as internal emollients have no nutritive value, and if taken regularly may delay or even prevent the absorption of valuable constituents of food. Extra fat and sugar may be consumed with advantage in cold weather, or when extra

physical effort is made. Carbohydrates consist mainly of starches and sugar. Starches are present in considerable quantities in rice, potatoes, cereals, etc., and also in green vegetables, fruits, and nuts; glycogen might be called animal starch and is the form in which the body stores carbohydrates, and it is found particularly in the liver, muscles, and heart. Sugar is available in three forms: cane or beet sugar; lactose or milk sugar; and glucose and fructose from fruits and honey. The last two groups are to be preferred to the highly concentrated and refined white sugars, which, in solution, are an irritant to the tissues and may have a detrimental effect on the delicate lining of children's stomachs, and in adults it may even produce chronic irritation with serious consequences. The less refined products such as treacle, molasses, golden syrup and Barbados and Demerara sugar are to be preferred. *The salts* are sulphates, chlorides, phosphates, etc., occurring in animal and vegetable tissues, and usually supplemented by added sodium chloride, or common salt. There are numerous other mineral matters needed for normal growth and functioning of the body. The chief are: calcium, phosphorous, iron, magnesium, sodium, iodine, etc., and if one or other of these is lacking in the diet, ill-health or even death may result: goitre, or Derbyshire neck (also prevalent in Switzerland), can be prevented or sometimes cured by minute quantities of iodine taken into the body, from the sea air, from iodised salt included in the diet, or the addition of iodine in the water. The chief sources of mineral dietary elements are: milk, cheese, eggs, cereals, fruits, and vegetables. Vegetables should be fresh and either eaten raw or cooked in very little water to preserve valuable vitamins and minerals. *Water* is a solvent, and although most of our food contains fluid which supplies the body tissues and allays thirst, it does not supply the solvent which is necessary for the removal of waste matters from the system. A certain amount of pure soft-water (4-6 pints) should be drunk daily (tea and coffee are solvent fluids, but milk-made cocoa is not). A healthy diet should contain a certain amount of roughage, i.e., matter which acts as ballast and cannot be absorbed. This is present in the indigestible fibres of vegetables, fruits, wholewheat, and bran. *Vitamins* are substances of vital importance to life and growth and aid the body to resist infection. The best known are called (for the sake of simplicity) A, B, C, D, and E, each of which is indispensable, and one vitamin cannot deputise for another. Vitamin A (anti-rachitic) is necessary for growth, and gives protection against colds and bronchial affections. It is present in cod-liver oil, fish roe, egg yolk, butter, cream, suet, and fresh vegetables. Lack of this vitamin slows down or completely ceases growth, eye troubles develop, and rickets result. Vitamin B (anti-neuritic) is found principally in the seeds of plants, e.g., wholemeal wheat, rye, maize, whole

barley, whole rice, nuts, egg yolk, yeast, vegetables, fruits, peas, beans, lentils, carrots, potatoes, oranges; but not canned fruits or vegetables. A subsidiary vitamin, Vitamin B₂, or BB, is found in those foods, and also in the lean of meat, and through lack of it, people die of a disease called pellagra. Lack of Vitamin B causes beri-beri, a tropical disease, usually found in persons who live on polished rice. *Vitamin C* (anti-scorbutic) protects the body from scurvy but man must be deprived of this vitamin for several months before symptoms of this disease are apparent. A general feeling of depression, dizziness, irritability, etc., may, however, be due to incipient scurvy. Vitamin C is present in all fresh fruits and vegetables, particularly oranges, lemons, tomatoes, black-currants, and also rose hips. Rose hip tea is recommended on account of the remarkable richness of its vitamin C content. Vitamin C is the vitamin most easily destroyed by heat and oxidation; and through shortage of fresh fruit and vegetables it is likely to be absent from the diet in the winter and early spring. *Vitamin D* is generally found in the same foods as Vitamin A, but is distinct from it, and is essential for the calcification and normal growth of the bones. *Vitamin E*, necessary to fertility, is found in cod-liver oil, in various vegetable oils, and in whole wheat, oats, and lettuce.

The average man requires daily, 2700-2800 grms. of water; 30 grms. of salts; 70-150 grms. of proteins; 30-80 grms. of fats; and 340-570 grms. of carbohydrates. Man needs about 3000 net calories a day, but feeding by the theoretic caloric value of food presupposes perfect metabolism, whereas some foods are incompatible with others and should not be eaten together.

Metabolism may be defined as the sum total of all chemical processes which go on in the body, e.g., changes in the living cells providing vital processes and assimilating new material to repair waste. It is possible to measure the amount of heat produced by a man (after fasting for 15 hours and at rest) per square metre of body surface per hour, and this heat production, or metabolism, is known as *basal metabolism*, and the following table gives the average values in calories. A calorie is the amount of heat required to raise 1 kilogram of water 1° C.

Age	Basal Metabolism (Calories per sq. metre per hour)	
	Boys	Men
12-13	50	
20-50	40	
20-50		37

For example, the surface area of a normal man of about thirty years, height 5 ft. 8 ins., and weighing 11 stone, is 1.8 sq. metres; and the basal metabolism is therefore 40×1.8 calories per hour, i.e., 72 calories per hour. In twenty-four hours he produces 1728 calories, and this is the amount of heat produced basally, i.e., without food and at rest. Work will, of course, increase the metabolism, and the source of the increase must either be

his own tissues or his food. A diet can be calculated on the basis of the amount of work a man is to perform, but normally the organism regulates automatically (by means of appetite) the quantity of food. The amount of energy obtainable from a diet will depend not only on its quantity, but also on its make-up. The heat obtainable from a given food is called its calorific value. In 1933 a committee was appointed by the B.M.A. to determine the minimum diet for the maintenance of health and working capacity. It was agreed that, as about 10 per cent. of food is undigested and passed out of the body as waste matter in the faeces, the calorific value of food as purchased should be 3300-3400 calories for a daily requirement of 3000 calories for the average man. The food needs of the adult male are taken as the measure of unity; a woman or child requiring a fraction of this. This fraction is known as the 'man-value.' For example, a child of six to eight years requires six-tenths of the calories of the adult male, but these should, of course, be derived mainly from milk and dairy produce. For tables showing the approximate number of calories required for the average child and adult see FOOD AND FEEDING.

A normal diet should be varied, palatable, and contain sufficient calories in certain proportions made up of proteins, fats, and carbohydrates. In addition, fresh fruits and green vegetables should be taken daily to ensure an adequate supply of vitamins and mineral constituents. Solvent fluids must be included, and also roughage to act as ballast for the elimination of waste products. (See COOKING, FOOD AND FEEDING, etc.) See also R. H. A. Plimmer, *Analyses and Energy Values of Foods*, 1921; V. Knages, *Things that count in Diet*, 1928; V. A. Plimmer, *Food, Health, Vitamins*, 1928, 1940, and *Food values at a Glance*, 1935; R. Hutchison and V. H. Mottram, *Food and the Principles of Dietetics*, 1929, 1940; R. D. Lawrence, *The Diabetic Life*, 1931; D. Paterson and J. F. Smith, *Modern Methods of Feeding in Infancy and Childhood*, 1931; British Medical Association, *Report on Nutrition*, 1933; M. Hirsch-Benner, *Health Giving Dishes*, 1934, *The Hell of Ill-Health*, 1940, and *Children's Diet*, 1946; W. H. Hay, *A New Health Era*, 1935; H. Roberts, *Everyman in Health and Sickness*, 1935, 1950; E. E. Claxton and Lucy Burdekin, *Weight Reduction Diet and Dishes*, 1937, 1941; L. Nicholls, *Tropical Nutrition and Dietetics*, 1938; V. H. Mottram, *Food and the Family*, 1925, 1938; I. Stewart, *Dietetics for the Nurse*, 1939; M. E. Lowenberg, *Your Child's Food*, 1940; M. Abrahams and E. M. Widdowson, *Modern Dietary Treatment*, 1940; Sir J. Boyd Orr and G. Lubbock, *Feeding the People in War-Time*, 1940; Sir J. Boyd Orr, *Food and the People*, 1943; G. Bourne, *Nutrition and the War*, 1945; Claire Loewenfeld, *Wild Rose Hips in War Time* (London Health Centre); Medical Research Council, *Vitamins: A Survey of Present Knowledge* (H.M.S.O.).

Diethylamine, one of the three types of

amines (*q.v.*), produced by the action of ethyl halides on ammonia in alcoholic solution. It is colourless and inflammable, soluble in water, and boiling at 57.5°. It is a basic substance and forms salts with acids. Formula: $(C_2H_5)_2NH$.

Dietrich, Johann Wilhelm Ernst (1712-1774), Ger. landscape and genre painter, b. at Weimar. First instructed in the art by his father, then studied under Alexander Thiele. His pictures were exhibited in the art galleries at Dresden, Paris, and London; and he secured the patronage of the kindly Count von Bruhl.

Dietrich of Bern, see THEODORIC THE GREAT.

Dieulefit, small tn. in the dept. of Drome, France, and famous in the sixteenth century as a resort of the Calvinists. Pop. 2500.

Dieuze, or Duze, tn. in the dept. of Moselle, France. A mine near the tn., in activity since early times, still yields rock salt. D. also manufs. chemicals. Pop. 3000.

Diez, Friedrich Christian (1794-1870), Ger. philologist, b. at Glessen in Hesse-Darmstadt. Appointed Prof. of Modern Literature in 1830 at the univ. of Bonn. His most important works are his *Grammatik der Romanischen Sprachen* (1836), and his *Etymologisches Wörterbuch der Romanischen Sprachen* (1853); these two works may be said to have laid the foundation for the study of all the Romanic languages. An Eng. trans. of the introduction to the former work was made by Cayley in 1863. Other important contributions made by D. to literature are: *Die Poesie der Troubadours* (1826), and *Leben und Werke der Troubadours* (1829).

Difference and Finite Differences, in mathematics mean the excess of one quantity over another. This fundamental meaning of the term is almost lost in the higher parts of mathematics from the association of it with a methodised theory, derived from the consideration of the differences presented by successive quantities which follow a regular law. Summation of a series by the method of finite differences is a calculus of differences employed in problems involving interpolation or relating to annuities. By the operation of taking differences in this sense, we may find the rational integral function of the number of terms in a series or the general term of a series, when a certain number of the terms of the series are given. That is to say, the regular law of the series not being known by inspection, we proceed to take the first order of differences, viz. by subtracting each term from the term which immediately follows it and so forming a new series called the series of the first order of differences; then by repeating the process we get the series of the second order of differences, and so on until a series of regular or known form is arrived at, e.g. take the series -1, -3, 3, 23, 63, 129, ... and let a_n denote the general term of the series, and n the number of terms in the series. The successive orders of differences are:

-2, 6, 20, 40, 66
8, 14, 20, 26, ...
6, 6, 6

That is, the third order of differences gives equal terms, and a_n , the rational integral function of n , may be assumed $= v + x_n + y_n + z_n$. Putting 1, 2, 3, 4 for n in succession, we find $v = 3$, $x = -3$, $y = -2$, $z = 1$, and that the general term of the series is $3 - 3n - 2n^2 + n^3$.

Differences, a term used on the Stock Exchange to denote the amount of variation between the price at which it is agreed to buy or sell securities on a fixed day and the actual market price of the securities when that day arrives. Bargains for D. are not recognised by the rules of the Stock Exchange, being contrary to the law of wagering or betting contracts. It is not always easy to determine when an agreement with a broker is a mere betting contract or speculation on D., as in *bona fide* agreements the general practice is to carry over on every settling day and pay the D. only. The best test appears to be to ascertain whether each of the parties could in any event call upon the other to carry out his contract.

Differentia, term in logic applied to the distinguishing characteristic which separates any two species of a genus. For example, the D. which separates the species man from the other species of the genus animal is the reasoning faculty.

Differential Calculus, see CALCULUS.

Differential Equation. An equation between two or more variables that contains one or more differential coefficients is called a D. E. The theory of D. E. deals with the solution of such equations, i.e., the elimination of the differential coefficients by integration e.g. $\frac{dy}{dx} = 3x^2$ is a

D. E. and by integration with respect to the variable x we obtain the equation $y = x^3 + A$, where A is any constant. The latter equation is called the solution of the D. E. D. Es. are of considerable importance in all branches of science; they may be divided into two classes, viz. (i) *Ordinary differential equation* which contains only one independent variable,

e.g. $\frac{d^2x}{dt^2} = -\mu x$, where x is the dependent and t the independent variable. This D. E. is true of all types of simple harmonic motion of a particle in a straight line, x is the distance of the particle from the centre about which it oscillates and t is the time. The solution of this equation is

$x = A \cos(\sqrt{\mu}t + a)$, where A and a are constants determined by the particular conditions of the S.H.M. under consideration. Another famous ordinary differential equation is

$$LC \frac{d^2e}{dt^2} + RC \frac{de}{dt} + e = 0,$$

that is true for all cases of the discharge of a condenser of capacity C , through a circuit of resistance R , and self-inductance L . The solution of this equation determines the charge e on the plates of the condenser in terms of the time t . This solution and its subsequent experimental verification forms the basis of modern wireless. (ii) *Partial differential equations*

which contain two or more independent variables, e.g.

$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} = 0,$$

where u is the dependent, and x, y, z , the independent variables. This equation is extremely important in the theory of electricity and in the theory of gravitational attractions. See H. T. H. Poggio, *An Elementary Treatise on Differential Equations and their Applications*, 1928; N. Miller, *Differential Equations*, 1935; E. G. C. Poole, *Linear Differential Equations*, 1936.

Differential Forms, branch of mathematics that deals with the theory of transformations of co-ordinates; a knowledge of differential calculus and the theory of functions is required before dealing with the subject. D. Fs find important application in geometry, dynamics and physics, and in particular in Riemannian geometry and in Einstein's General Theory of Relativity.

Differential Geometry, geometry of the more familiar curves such as the straight line, the circle, the plane, ellipse, etc., together with surfaces such as the sphere and the ellipsoid can be dealt with by the analytical methods of algebraical geometry. In general, however, the geometrical properties of curves and surfaces vary continuously from point to point and when we wish to investigate such properties it is necessary to employ the analytical methods of the differential calculus (*q.v.*) that is capable of dealing with infinitesimal and continuous variations. D. G. is the branch of geometry that deals with such problems, just as algebraical geometry deals with geometrical problems that may be solved by algebraic analysis. See J. E. Campbell and E. B. Elliott, *A Course of Differential Geometry*, 1926; E. L. Ince, *The Principles of Descriptive Geometry*, 1935.

Differentiation in biology, describes the gradual increase in complexity of an organism. In a simple unicellular organism, all the life functions are carried out by a single cell. In such a multicellular plant as the filamentous green *Alga spiroyra* all the cells are exactly similar, and each can, at necessity, lead an independent existence. As the evolutionary scale is ascended, however, we find first that special cells are set apart for special functions, and later that this differentiation results in the appearance of specialised multicellular organs and tissues. Roughly, it is true to say that those organisms that show the greatest degree of differentiation are the most highly evolved. The reverse process to differentiation is known as *dedifferentiation*, a good example of which is seen in cancer tissue.

Diffraction, in light, a modification which light undergoes in passing the edge of a body by which the rays appear to be bent and to invade the shadow. One of the strongest arguments used by Newton in his defence of the corpuscular theory of light transmission as opposed to the wave

theory was that the latter did not explain shadows. If light from a small source is obstructed by an opaque body, it was said, a shadow with sharp outlines is produced, thus showing that light travels in straight lines. On the other hand, sound, which it was admitted travelled by waves, is only slightly affected by obstacles, as the impetus originated by the vibration makes its way round the edges of the obstacles. The argument falls because a small source of light does not produce a shadow with a well defined edge, and, on the other hand, sound may be cut off by an obstacle, if the obstacle be large enough. The difference is accounted for by the fact that sound waves are often several feet in length, and are therefore not affected by small obstacles, while the mean length of light waves is one fifty-thousandth of an inch. Suppose monochromatic light to proceed from a narrow slit towards a screen, and that an obstacle with a sharp edge be placed so that a portion of the light proceeding from the slit is cut off, it is found that, instead of there being a definite boundary line between illumination and darkness, a series of dark lines appears parallel to the edge of the geometrical shadow, becoming narrower and closer and more indistinct as they recede from the edge. At first these lines were explained by the interference of waves coming from the source with those reflected from the edge of the obstacle, but it was shown that the sharpness of the edge is immaterial. It was Fresnel who first proposed the theory of D., which states that each element of any wave-front proceeding from a given source acts as a source of vibration itself, and sends out secondary waves. When the wave front reaches an obstacle, some of these secondary sources are destroyed and the resulting effects on the screen are due to the interference of the waves from the remaining sources. Some of the waves reinforce each other, and some being in a different phase on account of the slight differences in distance of the screen from the point on the spherical wave-front, tend to counteract each other. The resultant effect is a series of bands merging into each other, alternately bright and dark. When the source is red light the bands are wide; when the source is violet the bands are narrow, owing to the shorter wave-length. When white light is used the bands are superposed, and a series of prismatic colours is produced. If light from a small source be allowed to pass through a narrow slit in an opaque screen, and then observed through a telescope behind the screen, a bright band of light will be seen, and on each side a series of alternately bright and dark bands gradually becoming less distinct as they recede from the middle band. If red light be used, the bands of illumination and of darkness will be broad; they will be narrower if green is used and so on. If white light is used, the colours are not exactly superposed, but a series of spectra will be seen, the violet being nearer the central band. If a grating composed of a parallel series of fine wires close together be used, the

spectra will be seen with increased brilliance, and the closer such a grating can be made, the more brilliant will be the effect. D. effects by reflected light can be seen by cutting a series of fine grooves on a plane surface. The beautiful colours of mother of pearl are due to the striated nature of the surface and not to any absorptive powers inherent in the substance. Thus if a moulding of such a surface be taken in sealing-wax, the same colour effects are produced. D. spectra are preferable in many cases to prismatic spectra, as the nature of the material used is of no consequence, so that the bands of the spectrum take up their true position. *See also* LIGHT.

Diffusion, term in chemistry applied to the mixture of two substances without chemical combination. Gases possess the property of D. more than liquids (*e.g.* diffusion of oxygen and nitrogen in the air), but some metals may be diffused under pressure at a high temperature. *See also* CHEMISTRY and SOLUTIONS.

Diffusion, Circle of, *see* CIRCLE.

Digamma (Gk. δ and γ αμμα) was the name given to the sixth letter in the auct. Gk. alphabet, found only in inscriptions. The name was given on account of the likeness which its form (F) was said to be to a double gamma. Its sound corresponded roughly to the sound of our letter 'W.' It had disappeared from Gk. by the time of the Homeric poems, but although not written its influence can be traced in them, as, judging from the metre, some of the words seem to have had a sound which was afterwards lost—thus $\epsilon\pi\omega\rho$ was $\epsilon\pi\epsilon\omega\rho$. This letter was introduced into the Lat. language, where it lost its original sound and became *f*.

Digby, co. and tn. of Nova Scotia, Canada, bordering on the Atlantic. The surface is varied with mts., rivs., and lakes. Coal, copper, and silver are found. The cap., Digby, is a port, situated on Digby Neck, 45 m. S.E. of St. John, and is noted for its herring fishery. Pop. of co. 20,000, and of tn., 1200.

Digby, Sir Everard (1578-1606) Eng. knight, was brought up a Protestant, and held office in Queen Elizabeth's household, but becoming a Catholic he embraced the cause of James I., by whom he was knighted. He was at the head of a party whose design was to await news of the success of the Gunpowder Plot, and then immediately to take arms. He was executed in St. Paul's Churchyard.

Digby, Sir Henry (1769-1813), Eng. admiral. He captured (1799) a Span. frigate, a Fr. corvette, a privateer, and sev. other vessels, and at the battle of Trafalgar was in command of the *Africa*.

Digby, Sir Kenelm (1603-55), Eng. naval commander and writer. In 1627 he set out for Gibraltar on a privateering expedition, capturing several ships and gaining a victory over the Fr. at Scanderon. He spent the next few years in furthering Rom. Catholic interests in England, and after being summoned before Parliament on account of his proposals to Charles I., was imprisoned and released on condition that he went to France. During

his stay abroad he carried on negotiations with the pope, and after coming back to England in 1649 was compelled to go abroad again at once. On his next return in 1655 he was in close communication with Cromwell. Among the many books which he wrote are *Observations upon Religio Medici* (1643), *Observations on the 22nd Stanza in the 9th Canto of the 2nd*



SIR KENELM DIGBY

Book of Spenser's Faerie Queene (1643), and *Private Memoirs of Sir Kenelm Digby*. Written by himself, ed. by Sir H. N. Nicolas, and pub. in 1827. See E. W. Bligh, *Sir Kenelm Digby and his Venetia*, 1932; J. F. Fulton, *Sir Kenelm Digby*, 1937 (with bibliography).

Digby, William (1849-1904), Eng. journalist and E. India agent and merchant. He advocated an extension of self-gov. among the natives of India and founded the Indian Political Agency for distributing information in England about the Indians. His works include *The Famine Campaign in S. India, 1876-8* (1878), and *'Prosperous' British India* (1901).

Digest, see CORPUS JURIS CIVILIS and JUSTINIANUS.

Digestion, process by which food is rendered soluble and diffusible, so that its nutrient constituents can be absorbed into the blood and lymph, and later assimilated by the tissues. D. takes place in the alimentary canal, which starts at the mouth, continues as the pharynx, œsophagus, stomach, intestines, and rectum, and ends at the anus. In the mouth occur mastication and salivation. The purpose of mastication is to crush and grind the food into small particles. The saliva is poured into the mouth from three pairs of glands named parotid, submaxillary, and sublingual. The parotid gland secretes a clear saliva, the other two a sticky saliva containing mucin. The

saliva effects the solution of such substances as salt and sugar and moistens the food so that it can be rolled by the tongue and palate into a soft bolus. Saliva also has an important chemical action, for by means of an enzyme called *ptyalin* cooked starch in the food is converted into maltose, a kind of sugar. When the food is sufficiently masticated, it is pushed backwards by the tongue and urged rapidly into the gullet or œsophagus and thence into the stomach by a series of muscular movements known as peristalsis. The stomach is entered by the cardiac orifice which relaxes to admit the food and then closes. The mucous membrane of the stomach is lined with columnar epithelium, in which are embedded little pits called the gastric glands. From these glands gastric juice pours when they are stimulated by the approach of food. The muscular coat of the stomach produces movements which churn the food and tend to urge it towards the intestine. The pylorus (Gk., a gate-keeper) or orifice leading from the stomach, only opens in response to an acid stimulus, and as the food received from the gullet is alkaline owing to the presence of salivary secretions, it remains in the stomach until thorough admixture with the gastric juice has rendered it acid. Gastric juice contains hydrochloric acid and an enzyme called *pepsin*, by which the proteins in the food are converted into peptones and a second enzyme, *rennin*, which coagulates milk. The stomach proceeds to discharge its contents into the intestine about half-an-hour after the commencement of a meal, though it takes about three hours to empty itself. The intestine secretes a juice called *succus entericus* or intestinal juice; and two other secretions, pancreatic juice and bile, enter by their ducts, which open into the duodenum, or first part of the small intestine. Pancreatic juice contains three enzymes: *trypsin*, which attacks proteins more completely than gastric juice, converting them into amino-acids; *amyllopsin*, which converts starch into maltose, thus taking over the function of salivary juice whose activity is stopped in the stomach; and *lipase*, which splits the fats into glycerin and fatty acid. Bile by itself has no digestive action, but it aids the action of lipase. The intestinal juice contains the following enzymes: *enterokinase*, which is concerned in the production of trypsin; *crepsin*, which aids trypsin in the breaking up of peptones; and enzymes which convert maltose and other sugars into glucose. Covering the surface of the mucous membrane of the small intestine are a large number of small prominences called villi. These increase the surface for absorption by which the products of D. of protein and carbohydrate diffuse into small blood-vessels lying immediately under the epithelium. The glycerin and fatty acid are carried into the central lacteal or lymphatic vessel, and are again united into small globules of fat. The amino-acids from the proteins are carried in the blood-stream to repair and build up the tissues; any excess is converted by

the liver into urea, which is sent to the kidneys to be disposed of. The tiny globules of fat pass into the thoracic duct, whence they find their way into the bloodstream and ultimately into the tissues, where they produce heat by oxidation or are stored up in the form of adipose tissue. The sugar is temporarily stored in the liver as glycogen and given out as glucose when required. The small intestine is 22½ ft. long and the passage of the food occupies about four hours. It then travels more slowly through the 4 ft. of large intestine, taking from twelve to eighteen hours to reach the rectum. During this time water is absorbed and the waste residue is gradually compressed into a compact mass into the rectum and finally is expelled by the anus. *See also* ENZYMES.

Diggers' Conference, body formed by the Bendigo gold-diggers of Victoria in Jan. 1854, which had for its object the supersession of the ordinary gov. The chief ground of complaint among the diggers was the licence system and they also demanded representation on the Legislative Council of Victoria. When in Sept. 1853 the New South Wales Legislative Council seriously proposed to abolish the licence fees the miners of Bendigo naturally expected that Victoria would follow the lead. The Victorian Gov., however, instead of doing so, passed a new Act greatly reducing the fees and legalising miners' customs. This partly restored order but it was evident that the goldfields contained men who were opposed to any peaceable settlement. Hence the formation of the D. C. But though the movement for a Congress came to nothing, the events of the next few months formed a crisis in the hist., not only of Victoria, but of Australia. The most notable of these events was the affair of the Eureka Stockade in the time of governor Sir Charles Hotham. This affair is sometimes described as the only 'battle' which ever took place on Australian soil. *See further under* BAL-LARAT; EUREKA STOCKADE.

Digges, Leonard (d. c. 1559), Eng. mathematician, b. at Barham, Kent, and educated at Univ. College, Oxford. He was the author of *A prognostication of right good effect* (1555), *A Book named Tectonicon, briefly shewing the exact measuringe all maner lande* (1562), *A Geometrical Practise, named Pantometria* (1571), and *An Arithmetical Militaire Treatise named Stratagicos for the Profession of a Soldiour* (and Thomas D., 1572).

Digges, Thomas (1515-95), Eng. mathematician, was the son of Leonard D. In 1582 he began the repair of Dover harbour and two or three years later he was one of a party of explorers in the Antarctic with the special object of searching for the lands of the 'Cave of Cathala'.

Digit (Lat. *digitus*, a finger), a word used to signify any symbol or number, from 0 to 9. Thus 4629 is a number of four Ds. Originally, the term was only applied to the actual numbers 1, 2 . . . 9, but by practice has come to signify the characters of the numbers.

Digitalin, a poisonous alkaloid, is obtained from *Digitalis purpurea*, the foxglove and kindred plants.

Digitalis, a genus of European and Asiatic Scrophulariaceae, is known in Britain chiefly by *D. purpurea*, the purple foxglove. The leaves contain an active principle of a poisonous nature which has a strong effect on the action of the heart and is therefore valued in medicine. *D. grandiflora* is a cultivated species with yellow flowers; *D. lutea* grows in the woods of France and Germany, and *D. ferruginea*, with roundish rust-coloured flowers, in Asia and S.E. Europe.

Digne, Fr. tn. and the cap. of the dept. of Basses-Alpes. The tn. is situated on the R. Bléonne, and contains a cathedral and public library. It has hot springs. Pop. 7000.

Dignities, *see* NOBILITY; ORDERS OF KNIGHTHOOD; TITLES.

Digod, *see* DIGOA.

Digoin, tn. of France in the dept. of Saône-et-Loire, situated at the junction of the Loire with the Canal du Centre. There are manufs. of earthenware. Pop. 6700.

Dihydroxysuccinic Acid, *see* TARTARIC ACID.

Dijon, Fr. city, the cap. of the dept. Côte-d'Or, and originally the cap. of Burgundy. It is situated on the canal of Burgundy, where the Ouche and the Suzon join, and is a railway centre on the Paris-Lyons railway. It is the seat of a bishop, a univ. tn., and possesses a library, natural hist. museum, an academy of art, botanical gardens, and a *lycée*. The commerce of D. is considerable, most of it consisting of the trading in Burgundy wines. Its manufs. are very varied, among them being wines, biscuits, preserves, mustard, oils, motor-cars, copper wares, hardware. D. is next to Paris and Rouen in riches of works of art and especially in anct. and medieval churches, some of which are St. Philbert, St. Bénigne, Notre Dame, St. Jean, and St. Etienne (now the chamber of commerce). Notre Dame possesses the famous clock of Jacquemart, brought by Philip the Hardy from Courtrai in 1382. There are many richly adorned old houses; the splendid Palais de Justice and the palace of the Dukes of Burgundy, in which is the tn. hall and the richest museum in Fr. outside Paris, the famous library is in the former Jesuit College. It was the magnificence and wealth of the dukes of Burgundy that made the fortune of D., of which it was the cap. from the twelfth century to 1477. St. Bernard, Bossuet, Charles the Bold and many other famous men were born here. During the Second World War D. became an important communications centre for the Ger. occupying forces, and the strong resistance maintained there was overcome by the U.S. Seventh Army on Sept. 11, 1944, when French forces with the American Army entered the town. Pop. 100,600. The arron. of D. has a pop. of 174,000.

Dikoa, or **Digoa**, tn. of the N. Cameroons, under Brit. mandate. It lies in a fertile plain. Pop. 15,000.

Dikran, *see* TIGRANES.

Dilemma, a kind of argument which offers a choice between two alternatives, both equally disagreeable. The two alternatives are called the 'horns' of the D., for if the adversary escapes the one he will be caught on the other. A classical example of D. is Aristotle's Athenian mother's advice to her son: 'Do not enter into public affairs: for if you say what is just, men will hate you; and if you say what is unjust, the gods will hate you.'

Dilettanti, Society of, club founded about 1733 by a number of gentlemen for the purpose of social intercourse and for the study, as amateurs, of antique art. Funds having accumulated, the society sent out in 1834 an exploring party (under Chandler, Revett, and Pears), and later a second expedition, to collect details and make drawings of the most important monuments of antiquity. These expeditions brought back material for sev. vols. pub. by the society: *Ionian Antiquities*, *Specimens of Ancient Sculpture*, *Unedited Antiquities of Attica*, *Portfolio of Greek Architecture*, etc.

Diligence, the name given to a public conveyance of the nature of a stage coach. See COACH AND COACHING.

Diligence: (1) In Scots law: (a) A term nearly equivalent to *execution* in the Eng. law. It includes the various means by which the person may be seized and imprisoned or the property attached and disposed of, for the purpose of enforcing payment of a debt or performance of any civil obligation. (b) A warrant to enforce the attendance of a witness, or the production of writings. (2) In Eng. law the term diligence may be used in the law of bailments to indicate the degree of care which a person to whom goods are entrusted must exercise in the custody of the goods to escape liability for loss or damage to them.

Dilke, Charles Wentworth (1789-1864), Eng. journalist, in early life devoted himself to the pursuit of letters. In 1814-15 he issued a continuation of Dodsley's *Old Plays*, and became a regular contributor to the reviews. His connection with the *Athenæum* began in 1829, and in the following year he became editor and proprietor. Having made a success with this paper, he was offered the management of the *Daily News*, then in low water, and he directed the fortunes of that paper from 1846 for three years. Towards the end of that period he began to contribute to the *Athenæum* articles on Junius and Pope, which were in 1875 collected and pub. by his grandson.

D.'s grandson, **Sir Charles Wentworth Dilke**, second *Baronet* (1843-1912), travelled much in his youth, and gave the world the benefit of what he had learnt in the colonies in *Greater Britain* (1867). He entered Parliament in the next year as a Radical. An effective speaker, and with much knowledge of the subjects upon which he delivered himself, he soon became a prominent figure in the House of Commons. In 1880 he was appointed under-secretary of foreign affairs, and he conducted efficiently the business of his

dept. until 1885, when Gladstone was forced to resign. As a result of a citation in a divorce suit, he decided to retire from public life and occupied his leisure in the composition of *Problems of Greater Britain* (1890), in some senses a sequel to his *Greater Britain*. Later, he was nominated as a parliamentary candidate for the Forest of Dean in 1892, and that constituency for the rest of his life returned him to Westminster. In the House of Commons he confined himself henceforth to questions of foreign and imperial affairs, upon which he was a recognised authority.

Dilke, Lady, née Emilia Frances Strong (1840-1904), a writer on art, daughter of Major Strong of Oxford, wife first of Mark Pattison, then of Sir Charles Wentworth D. On the advice of Ruskin she became a student at the Art School, S. Kensington, in 1859. She studied much in France, gathering material for her books, among which are: *The Renaissance of Art in France* (1879), *Claude Lorraine* (written in Fr. 1884), *French Painters* (1899), *French Architects and Sculptors* (1900).

Dill, an aromatic umbelliferous plant, closely related to the parsnip. The fruit is employed medicinally as a carminative in the form of dill water, or *aqua Anethi*, and is also used as a condiment. The sowa D., or *Peucedanum Sowa* of Bengal, has a fruit which is often used in curries.

Dill, Sir John Greer (1881-1944), Brit. soldier, b. at Belfast, N. Ireland, Dec. 25; educated at Cheltenham and Sandhurst. He served in the S. African war in 1902, and at the beginning of the First World War he was appointed a brigade major. He later served at the H.Q. of the Canadian Corps, and from 1917 onwards he was Chief of the Operations Branch with the rank of colonel. D.S.O., 1915; C.M.G., 1918. He was promoted to brigadier in 1928 when he went to India, and major-general in 1930. In 1931 he became Commandant of the Staff College, Lieutenant-General, 1936. On the outbreak of the Second World War he went to France in command of the First Corps of the British Expeditionary Force, but returned to England in 1940 to become Vice-Chief, and later Chief, of the Imperial General Staff. The formation of the Commandos (g.v.) in 1940 owed much to his inspiration and vision. In 1941 he vacated this post on reaching the age of 60, and was promoted to the rank of field-marshal. The same year he left for Washington for special duties on the Combined Chiefs-of-Staff Committee. He was present at the Casablanca Conference and also travelled in the Far East on a special mission as representative of the Prime Minister, Mr. Churchill. He died at Washington, Nov. 4, 1944. K.C.B. 1937; G.C.B. 1942. Awarded the U.S. Distinguished Service Medal.

Dilleniaceæ, an order of Dicotyledons, consists chiefly of tropical shrubs and trees, most of which bear yellow flowers and have leathery leaves. The bushes help to form the Australian scrub, the trees are found in woods in tropical India, the woods of Brazil have several kinds, usually of climbing or trailing habit.

Typical genera are *Dillenia* and *Hibbertia*, the latter containing *H. volubilis*, a showy twiner with offensive-smelling flowers.

Dillenius (Dillen), Johann Jakob (1684-1747), Ger. botanist who came to England on the invitation of Sherard, and settled in Oxford, becoming the first Sherardian Professor of Botany. He ed. Ray's *Synopsis stirpium Britannicarum* (1724), and wrote *Hortus Elthamensis* (1732), *Historia Muscorum* (1741), and many botanical papers.

Dillingen: (1) Ln. of Bavaria, Germany, on the Danube, 24 m. N.W. of Augsburg. There are sev. churches and monasteries and a thirteenth century castle. Pop. 7000. (2) Tn. in the Rhineland with large iron works. Pop. 10,000.

Dillmann, Christian Friedrich August (1832-94), Ger. orientalist and theologian, the first authority on the Ethiopic languages. He was b. at Illingen in Württemberg, and studied under Heinrich Ewald at Tübingen. During 1846-48 he visited the libraries of Paris, London, and Oxford, studying their Ethiopic MSS; those of London and Oxford he catalogued. Chief works: Ger. trans. of parts of the Ethiopic Bible, *Grammatik der Äthiopischen Sprache* (1857), *Commentar zum Hiob* (1869), and *Vorlesungen über Theologie d. Alten Testaments* (1895).

Dillon, John (1851-1927), Irish politician, M.P. for E. Mayo (1885-1918); one of the leaders of 'Young Ireland.' He first entered the House of Commons in 1881 as member for Tipperary; he was then a supporter of Parnell. In the same year he was twice arrested for inciting to boycotting. He was one of the pioneers of the 'Plan of Campaign' and the Land League. After six months' imprisonment in 1888 he went to Australia and New Zealand collecting funds for the National Party, then was again imprisoned in 1891. He declared against Parnell in 1891 and became leader of the United Nationalist Party and chairman of the Irish National Federation from 1896 till 1900—when John Redmond became leader of the reunited party. D. accompanied Redmond to Buckingham Palace in July 1914, on the occasion of the conference on the gov. of Ireland. When Redmond died D. succeeded him as leader. His party was virtually extinguished by Sinn Féin in Dec. 1918. He died in a London nursing home.

Dillon, Wentworth, see ROSCOMMON, EARL OF.

Diluent, a medicinal agent which dilutes the blood and the secretions of organs. Water is the commonest substance used for the purpose and acts by increasing all the secretions, especially those of the skin and kidneys, thus aiding in the disposal of waste products in the system. The internal use of water in this way forms part of the practice of *hydropathy* (q.v.).

Diluvial Formation, see under GEOLOGY.

Di Manes, see MANES.

Dime (Lat. *decima*, a tenth, through Old Fr. *disme*), a small silver coin of the U.S.A.; its value is 10 cents, or one-tenth of a dollar.

Dimension, in geometry, a direction

or mode in which extension may be measured. A point, having no magnitude, has no D.; a line has one D., length; a surface has two Ds., length and breadth; a solid has three Ds., length, breadth and thickness. The motion of a point generates a line, the motion of a line generates a plane or surface, and the motion of a plane generates a solid figure. Proceeding to an analogous motion of a three-dimensional solid, the concept of a figure of four Ds. has been obtained, and thus arises a branch of geometry dealing with non-existent figures.

In algebra, terms formed by the multiplication of a quantity by itself are called 'squares,' and terms generated by the product of three similar factors are called 'cubes' by analogy from the geometrical concepts. Equations containing terms of one degree or D. are called linear, those containing terms of two degrees or Ds. are called quadratic, and those containing terms of three degrees or Ds. are called cubic. It is to be observed, however, that the symbol x^2 does not represent a surface, or x^3 a volume, and in graphical representation the functions x^2 , x^3 are represented by lines; x^2 , in fact, represents a number merely, but if a preliminary statement be made that x represents the number of units of length in a certain straight line, then obviously x^2 represents the number of units of area in a square, each of whose sides contains x units of length.

In physics, symbols are used to represent quantities measured in terms of units of length, area, volume, time, mass, velocity, force, etc. For the sake of brevity and simplicity, such equations as $s = vt$ (space = velocity \times time) are used. The employment of such an expression does not mean, for instance, that velocity is multiplied by time, if that has any meaning at all, but that the numerical measure of the space traversed is obtainable by multiplying the numerical measure of the velocity in terms of the unit of velocity by the numerical measure of the time taken in terms of the unit of time. Of the units used in mechanics, those of length, time, and mass are fundamental, that is, we cannot explain them by reference to anything else. The units of area, volume, velocity, acceleration, force, etc., are derived units; that is, they can be explained by reference to one or more fundamental units. The quantities used as fundamental units are chosen arbitrarily. If we are speaking of an interval of 2 hours, and use 1 hour as the unit of time, the interval would be represented by the number 2; if 1 minute were the time-unit, the interval would be represented by the number 120, and so on. Suppose $[X]$, $[Y]$, $[Z]$ be 3 units in which any physical quantity can be measured, and let x , y , z be the numbers of those units which represent a certain amount of the quantity, then $x[X] = y[Y] = z[Z]$, whence $x:y:z = 1/[X]:1/[Y]:1/[Z]$; that is to say, the number expressing the amount of any quantity is inversely proportional to the unit chosen for its measurement. Many writers use the centimetre as length-unit, the gramme as mass-unit, and the second

as time-unit, but the foot as length-unit and pound as mass-unit are still often employed. If m represents the number of grammes and m' the number of pounds in a given piece of matter, then $m[M] = m'[M']$, or $m = [M']m'/[M]$. The ratio $[M']/[M]$ is the number of grammes in a pound, or 453.59, and this ratio may be employed in transferring the measure of any mass from one system of units to the other.

The measure of density is indicated by the equation $d = m/v$, where m represents the number of units of mass and v represents the number of units of volume. If $[L]$ be the unit of length, and a rectangular parallelepiped be supposed whose length is $l[L]$, breadth $l'[L]$, and height $l''[L]$, its volume will be $ll'l''[L]^3$. Now, if $[V]$ be the unit of volume, and if there be v units of volume in the parallelepiped, then $[V]v = ll'l''[L]^3$. But l, l', l'' and v are mere numbers, therefore $v = ll'l''$, and $[V] = [L]^3$. Now, returning to the equation for density we get $[D]d = [M]m/[V]v$, or $[D]d = [M]m/[L]^3v$, whence $[D] = [M]/[L]^3$. The ratio $[M]/[L]^3$ is the D_s of the unit of density in terms of the fundamental units of mass and length. Again, for velocity we have the equation $s = vt$. This means $s[L] = v[V]t$, $\therefore v[V] = s[L]/t$, where v, s , and t are mere numbers and $[V]$ is the unit of velocity. Therefore $[V] = [L]/[T]$. That is to say, the unit of velocity has D_s 1 in length and D_s -1 in time. Similarly from the equation $s = \frac{1}{2}ft^2$ we obtain $s[L] = \frac{1}{2}[F]t^2[T]^2$, where $[F]$ is the unit of acceleration and s, f, t^2 and $\frac{1}{2}$ are mere numbers. Therefore $[F] = [L]/[T]^2$ or $[L]/[T]^2$. The unit of acceleration has therefore D_s 1 in length and D_s -2 in time. The D_s of other physical units may be similarly explained.

Dimethyl Ketone, see ACETONE.

Dimidiation (Lat. *dimidio*, to halve), in heraldry, term denoting the cutting of two coats of arms in half and joining the dexter half of the one to the sinister half of the other.

Diminishing Return. Law of diminishing return is one of the elementary laws of the science of political economy (q.v.). John Stuart Mill stated, perhaps exaggeratedly, of this law that it is the most important and in its different phases perhaps the most commonly misapplied law in political economy. In respect of a piece of land (say an acre) the law states that after a certain point, other things remaining the same, the returns to successive applications of labour and capital will continuously diminish. The law applies of course to all other productive agents. Its peculiar value in the case of land arises from the fact that the quantity of land is limited and the better qualities still more limited; so that while capital and labour may go on increasing, land cannot so increase and any increase of the produce must be at an increasing cost, or in other words the return per unit diminishes. The law of diminishing return is of great value in its wider applications to the economic study of rent, population, value, incidence of taxation, etc.

Dismissory Letters (Lat. *dimittere*, to dismiss), a letter in which a bishop consents to the ordination by another bishop of a candidate for holy orders of his diocese.

Dimorphism (Gr. *dis*, twice, and *μορφη*, shape or form): 1. A term applied in zoology and botany to the appearance of an organism in two different forms. The dimorphic organisms are fundamentally identical in structure and in origin. Thus, the bee is dimorphic in the female sex, the fertile queen and the barren worker presenting the two forms. The same phenomenon is seen in the 'nutritive' and 'reproductive' forms in colonies of hydroids. The two sexes present such widely different forms in some of the insects and crustaceans that they seem to belong to quite different genera—this is sexual D . Butterflies are subject to 'seasonal' D . Among flowers, the varieties of the primrose offer good examples of dimorphic forms. 2. In the mineral kingdom a body is said to be dimorphous when it is capable of crystallising according to two different systems geometrically incompatible, the chemical composition of the dimorphic bodies being identical. Carbon, sulphur, phosphorus, calcium carbonate, and mercuric iodide are well-known examples. Carbon appears under one form as the diamond, and under another as graphite, with the following widely contrasting sets of properties: the diamond is colourless, transparent, has an adamantine lustre, is the hardest of all substances, a non-conductor of electricity, has a specific gravity of 3.52, and crystallises as octahedra; graphite is grey, opaque, has a metallic lustre, is exceedingly soft, a fairly good conductor of electricity, has a specific gravity of 2, and forms hexagonal crystals belonging to the rhomboidal system. Yet both have the same chemical composition, and both yield carbon dioxide when burned in oxygen; the diamond becomes graphite if heated in the electric arc. The difference between them is caused by different arrangements of the atoms in the crystals, as was shown by the X-ray method of crystal analysis invented by Sir William Bragg and his son Sir Laurence Bragg. Red mercuric iodide when heated changes into rhombic plates, which the slightest friction changes into octahedral crystals, the colour changing at the same time from yellow to a brilliant scarlet. Sulphur yields transparent amber-coloured octahedra under one treatment, prismatic crystals under another. The terms *trimorphism* and *polymorphism* indicate this phenomenon when the same organism or substance presents three or more different forms.

Dimsdale, Thomas (1712-1800), Eng. physician, whose work as an inoculator brought him world-wide fame: his *Thoughts on General and Partial Inoculation* was trans. into many languages. The Empress Catherine of Russia bestowed upon him a barony and a considerable pecuniary reward for the successful inoculation of herself and her son.

Dinajpur, dist. and tn. of W. Bengal, India. The area of the dist. which is flat and fertile, is 4126 sq. m. with a pop. of

1,700,000. Rice and jute are the chief crops. The tn. of D. is 220 m. N. of Calcutta. Pop. 14,000.

Dinan, Fr. tn. of the dept. Côtes-du-Nord and cap. of the arron. of D. It stands on the Rance, about 14 m. S. of St. Malo, being built on the summit of a hill, and at the spot where a high viaduct crosses the river. The tn. itself is picturesque, as some of its old walls and gates still remain. Its castle, which dates from the fourteenth century, is also well preserved. A great many of the old streets still exist, being characterised by their winding and narrow thoroughfares and their wooden houses. The churches of St. Malo and St. Sauveur are both of interest, the latter possessing an epitaph to the effect that it contains the heart of Bertrand du Guesclin. D. exports cattle, coal, and wood. Pop. 12,700.

Dinant, picturesquely situated tn. in the prov. of Namur, Belgium, on the Meuse, and cap. of the arron. of D. Manufact. of metal ware, called Dinanderie, spiced bread called 'couques de Dinant,' woollen goods, marble quarries, etc. It was sacked and destroyed by Charles the Bold in 1466, taken by the Fr. in 1554, and burnt and terrorised by the Gers. in 1914. On Aug. 15 of that year the Ger. advanced guards seized the citadel of D. and crossed to the left bank of the Meuse. Two hours later a Fr. brigade retook the town and drove the Gers. back across the riv. Pop. 7000.

Dinapur, Dinapore, or Danapur, tn. of Bihar, India, situated on the Ganges, 5 m. from Patna, to which it is joined. It is in two parts, Dinapur, and Dinapur Nizamut. Total pop. 31,000.

Dinarchus (Gk. Δυναρχος) (c. 361-291 B.C.), was the last of the ten (Gk. orators, and was b. at Corinth. He studied oratory at Athens under Theophrastus and Demetrius Phalereus. His fame as an orator began about 336 B.C., owing to the fact that the other Gk. orators had died. The height of his power, however, was during the administration of Demetrius Phalereus (317-307 B.C.).

Dinard (anct. Dinard-Saint-Enogat), tn. and watering place on the N. coast of France, situated in the dept. of Ille-et-Vilaine. It was occupied by the Gers. during the Second World War, and liberated by the Amer. armies on Aug. 15, 1944. Pop. 9000.

Dinaric Alps, that part of the Alpine system which joins the Julian Alps with the Balkan range. The main chain lies N.W. to S.E., and divides Dalmatia from Bosnia and Herzegovina. It also separates the basin of the Sava from the dist. drained by the Narenta, Kerka, and other rvs. flowing into the Adriatic. The highest summits are under 7000 ft.

Dindigul, or Dindigal, tn. of Madras, India. It is about 30 m. from Madura, and has a citadel on an isolated rock, from the top of which Hyder Ali threw his prisoners. There are several tanneries, a large cotton ginding factory, and tobacco factory. Pop. 31,000.

Dindings, The, strip of land in the Malay Peninsula on the S.W. coast of

Perak, 22 m. long, and comprising also the island of Pangkor. It lies between lat. 4° 20' N. and long. 100° 32' E. Formerly included in Penang, but retroceded to Perak, partly for convenience of customs collection and partly in recognition of the loyalty of the Sultan of Perak to the Brit. Crown. Poolo Dinding is covered with thick woods, and is noted for its great beauty.

Dindorf, Karl Wilhelm (1802-83), Ger. Hellenist and philologist, b. at Leipzig. He resigned a professorship at Leipzig Univ. in order to give all his time to literary work, especially to the preparation (with his brother Ludwig and Hase), of a new ed. of Stephanus's *Thesaurus Lingue Græcæ* (Paris, 1831-65). His philological researches into the text of the Gk. classics, especially that of the dramatists, have contributed greatly to its accuracy and clearness. He ed. a number of these classics, including an ed. of Demosthenes (7 vols.), *Poetae Scenici Græci*, and eds. of Aristophanes, Sophocles, Euripides, Aeschylus, and Homer, and of Polybius, Dion Cassius, and other Gk. historians.

D'Indy, Paul, see INDY.

Dindymene, see CYBELE.

Dingaen, see under ZULUS.

Dingaen's Day, Dec. 16, the anniversary of the decisive defeat of Dingaan, a Zulu chief, by a small force of Boers under Pretorius in 1838. The cause of the conflict thus brought to a close was the massacring by the Zulus of a party of Boer settlers. The particular event in which this yearly celebration and public holiday originated has fallen into oblivion, but on this day the anniversary of the proclamation of Boer independence in 1880 is celebrated, and it is looked upon as a day of thanksgiving for the spread of white civilisation in S. Africa.

Dingelstedt, Franz Ferdinand, Freiherr von (1814-81), Ger. poet, dramatist, and novelist. His *Lieder eines Kosmopolitischen Nachtwächters* (1870) caused a disagreeable sensation on account of the liberal principles expressed in them. He wrote a successful tragedy, *Das Haus der Harnvedt*, a society novel, *Die Amazone*, sketches of travel, and adapted Shakespeare and Molière to the Ger. stage.

Dingey, or Dinghy (Maharatta *dingī*), the name of a small boat used in Calcutta, etc.), a small row-boat usually supplied to a ship as an extra boat for common uses.

Dingle, par. and seaport of Eire in co. Kerry. The tn. is situated on the N. side of D. Bay, 30 m. S.W. of Tralee. It is the most westerly town in the Brit. Isles and is sheltered by hills on three sides. The harbour is practically useless, but the fisheries are important, and the curing of mackerel employs many of the inhabs. D. is said to have been founded by the Spaniards, who frequented the shores on account of its fisheries. Pop. 2000.

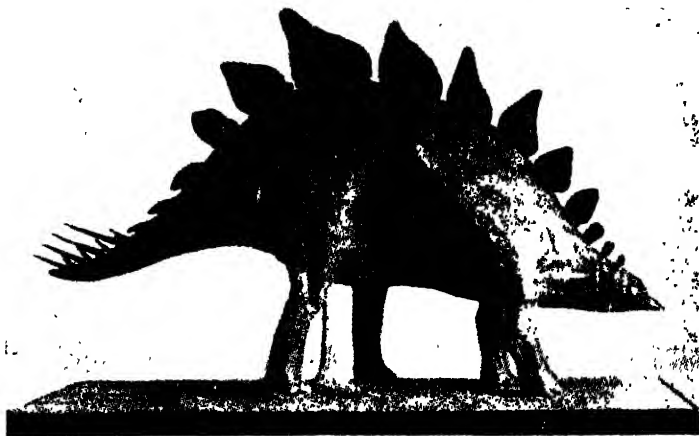
Dingley Tariff. The D. T. Act (named after Nelson D. (1832-99), the Chairman of Ways and Means Committee) was passed in 1897 in McKinley's first term. It embodied the Republican doctrine of high protection coupled with reciprocity.

There were provisions for reciprocity arrangements with other countries which paved the way for possible reductions by a commercial treaty. In 1930 the D. T. was replaced by the Tariff Act.

Dingo (*Canis dingo*), the warrigal, or wild Australian dog. It is a strong, short-legged dog, sandy-coloured, and not unlike the European fox, being about 40 in. in length, its tail measuring an additional 11 in. It works havoc upon flocks and poultry, and even after it has been tamed, seldom abandons its predatory habits. Its fossilised remains have been

Dinnington, coal-mining tn. of the W. Riding of Yorkshire, England, 8 m. S.E. of Rotherham. Pop. 7000.

Dinoceras, extinct genus of amblypodous mammals, consists of huge, semi-plantigrade animals, of which the fossil remains occur in N. America. In spite of the fact that the species rivalled the elephant in size, they possessed the smallest brain of any mammal. The limbs were heavy, and had well-developed bones; five short digits occurred on each foot. On the head there were three pairs of bony processes.



CRETACEOUS ARMoured DINOSAUR (JURASSIC PERIOD)

A reconstruction of *Stegosaurus ungulatus*

discovered with those of kangaroos and extinct Australian mammals. This has given rise to the opinion, held by Sir Frederick McCoy, Mr. Ogilvy, and others, that the D. must be an indigenous species of Australian fauna. But the existence in Java and India of a pariah dog, very similar in character to the D., has caused others to think that the D. was originally introduced into Australia by Caucasians from Ceylon or Malay.

Dingwall, parli. bor. and tn. of Scotland, and cap. of the counties Ross and Cromarty. It is situated on Cromarty Firth, 18 m. N.W. of Inverness. A small shipping trade is carried on, and there is a good harbour. The fisheries are important, and there is a corn mkt. Pop. 2500.

Dinka, see DENKA.

Dinkelsbühl, tn. of Bavaria, situated on the R. Würnitz, 40 m. N.W. of Donauwörth by rail. It is a medieval tn. with completely preserved walls and towers of the fifteenth century, tn.-moat and gable houses, old tn. hall of 1300. St. George's church is one of the finest late Gothic in S. Germany. Pop. 5000.

Dinocrates, Macedonian architect of the time of Alexander the Great, who rebuilt the temple of Ephesus, which had been destroyed by Erostratus. He was also employed by Alexander in the building of Alexandria.

Dinornis, see MOA.

Dinosaurs, an order of fossil reptiles which are confined to the Mesozoic age. The crocodiles of the present age and the birds of the div. Ratitae are the nearest to them in general characteristics. The characteristics of these animals were somewhat varied. Some had very small forelimbs, the hind-limbs being much longer, while some of them seem to have pursued the same method of locomotion as the kangaroo. Others again were provided with a long tail. The pelvis resembled that of birds in its structure, and the number of toes on the hind feet varied from five to three. The animals of this order were mostly land animals, and included both carnivorous and herbivorous species. Their size varied very much, some of them attaining enormous proportions—their length reaching 70 ft. or 80 ft. and their

height 10 ft. or more, while others were quite small. D. lived during the Triassic, Jurassic, and Cretaceous periods, their remains being found in those strata in Europe, Asia, Africa, America, and Australia. Dinosaurs is subdivided into Sauropoda, Theropoda, and Predentata. Sauropoda: the species in this div. are herbivorous and include some of the largest animals that have ever existed, and some of the oldest of the D. Brontosaurus, Atlantosaurus, and Diplodocus are included in Sauropoda. Theropoda: the species in this subd. have serrated teeth, hollow bones, and fore-limbs shorter than the hind-limbs, showing a tendency to an upright walking gait, most of them having moved like kangaroos. Predentata: these animals were herbivorous, either quadrupeds or bipeds, with a predentary bone on the end of the mandible. Under this subd. are included Ornithopoda, having three-toed hind-limbs and hollow bones and a bipedal means of locomotion. See H. N. Hutchinson, *Creatures of Other Days*, 1894; O. C. Marsh, *Dinosaurs of North America*, 1896; F. A. Lucas, *Animals of the Past*, 1901; W. E. Swinton, *The Dinosaurs*, 1931.

Dinotherium, extinct genus of Proboscidea to which the living elephants belong, but differs from these animals in many features. The incisors were prolonged into long tusks on the lower jaw, but curved downward; the skull was more primitive, and the bulk much more vast. Examples of the D. have been found in the Miocene of Europe and Asia.

Dinslaken, tn. of Rhineland, Germany, 25 m. N. of Düsseldorf, with coal mines and iron works. Pop. 27,000.

Dinton, park in Wiltshire, England, nine miles from Salisbury, on the Northern slope of the Nadder Valley. Philipps House, owned by the National Trust, was formerly the house of the Wyndham family and was completed in 1815 by Jeffrey Wyatt in the neo-Grecian style, of which it is a very successful example. It stands on rising ground beneath a screen of fine beech trees. Hyde's House, close to the church, was built in the Wren manner, probably about 1725, and incorporates Tudor portions. It is in the older house on the site that Edward Hyde, afterwards Lord Chancellor Clarendon, is said to have been born.

Dinwiddie, Robert (1690-1770), a Lieutenant-governor of Virginia. He entered into conflict with the Fr., against whom he sent Maj. George Washington. Built Pittsburg Fort. He was recalled on serious charges.

Diocesan Court, one of the ecclesiastical courts, a consistory. In every diocese of the Christian Church there is a D. C. presided over by the commissary or chancellor who acts as vicar-general for the bishop. Ecclesiastical cases arising within the diocese are here tried. Formerly their jurisdiction was much wider, but at the present day matrimonial, testamentary and even ecclesiastical cases, etc., being tried in other tribunals, the court is mostly concerned with points of order.

Diocese (Gk. *διοικησις*, housekeeping, management, province), a dist. under the ecclesiastical jurisdiction and care of a bishop. In Demosthenes the word is used for the treasury or finance dept., in Cicero it is applied to the three dists. of Cilyra, Apamea, and Synnada (added to Cilicia, 56-50 B.C.); D., from its original meaning 'administration,' coming to mean the part so administered. The term was primarily used in the civil administration of the Rom. empire, Constantine the Great dividing it into 13 Ds., which were subdivided into 120 provs. These Ds. (of which Oriens was the largest, Britain the smallest) were governed by praetorian prefects, proconsuls, or vicars, the provs. by rectors or exarchs. The word in its present ecclesiastical signification was not in common use till about the ninth century, *parochia* (parish) being the more usual term up to that time. Constantine (A.D. 306-337) made the ecclesiastical and political divs. correspond, the ecclesiastical Ds. being under a patriarch, the political under a praetorian prefect. Later D. came to mean a single metropolitanate or prov. instead of a group, and finally merely the sphere of jurisdiction of any bishop. In England an Act of Parliament is necessary to create fresh Ds. In 1836 the Ecclesiastical Commissioners Act created the Ds. of Ripon and Manchester. England and Wales have two ecclesiastical provs., Canterbury and York, subdivided into 33 Ds. In the Catholic Church Ds. are erected by the Pope in consistory. See J. Bingham, *Origines Ecclesiasticae*, 1840; P. Hinschius, *Das Kirchenrecht der Katholiken und Protestanten in Deutschland*, 1869-97; A. Baudrillart and others, *Dictionnaire d'histoire et de géographie ecclésiastique*, 1912-36.

Diocletian, Caius Valerius (A.D. 245-313), Rom. emperor, b. in Dalmatia, the son of obscure parents; entered the army and served with much success under Aurelian and Probus, later accompanying Carus on his Persian expedition, and at his death in 283 becoming commander of the Imperial Guards of Numerianus, son of Carus, who succeeded his father together with his brother Carinus. In the same year Numerianus was assassinated by Aper, and D. was proclaimed emperor by the army of the E. at Chalcedon, where he was then serving. Carinus had already been proclaimed in Italy, and a battle took place at Morgus in Moesia in which Carinus, after nearly gaining the victory, was killed, and D. remained sole claimant. In 286 he assumed as his colleague in the empire Marcus Aurelius Maximianus, and gave him the title of Augustus. Maximianus took charge of European affairs, and D. of the East with his cap. situated at Nicomedia. In 292 Galerius and Constantius Chlorus were also adopted as colleagues, and took up the gov. respectively of Thrace and Illyria (Galerius); and Gaul and Spain (Constantius). D. superintending Asia and Egypt, and Maximianus Italy and Africa. D. retained supreme command, and the arrangement resulted in great prosperity. In 297 a peace was concluded with Persia. In 303 D., under

the influence of Galerius, issued a severe edict against the Christians, the persecution of whom has left a stain on his memory. After a long illness in 304, he abdicated in favour of Galerius in 305, and retired to Salona in Dalmatia. He ranks high both as a general and a statesman. See also under ROMAN HISTORY.

Diodati, Giovanni (1576-1619), Calvinist theologian, b. in Geneva, whither his parents had fled from Lucca. He was distinguished during the Reformation as a preacher, and as a professor of Hebrew and Theology. Trans. the Bible into Ital. and Fr. A nephew of his, Charles, was a schoolfellow and friend of Milton, and wrote an elegy on the death of the poet.

Diodon, see GLOBE FISH.

Diodorus (surnamed Siculus), a Gk. historian, b. in Agrigum in Sicily, and lived in the time of Caesar and Augustus. His idea was to write a history of all nations from the very early times to his own day. The work entitled *Bibliotheca Historica* consists of forty books in three sections, the first dealing with times previous to the Trojan War, the second ends with the death of Alexander the Great, and the third with Caesar's Gallic wars. Only fifteen of these have come down to us. The work, however, is characterised by a want of order and critical power, and misunderstanding and distortion of fact to adorn a tale, and often also to point a moral, have disguised the historical kernel of this great compilation which, however, is valuable as a collection of materials the sources of which are lost. On Babylon, for example, D. is as detailed as Herodotus, though less reliable.

Diodorus of Tarsus, a biblical commentator, native of Antioch. He was one of a succession of eminent men taught at Antioch by the aged Eusebius of Emisa, himself a pupil of Eusebius of Cæsarea. He became Bishop of Tarsus in A.D. 378. He made commentaries on the books of the O.T. D. had great influence over Chrysostom and Theodore of Mopsuestia.

Diogenes (c. 412-323 B.C.), Cynic philosopher of Sinope in Pontus. He was the son of Iccias, and on account of the latter's dishonest actions D. had to leave Sinope and take up his residence in Athens. After much persistence, in spite of constant harsh rebuffs, he became the pupil of Antisthenes, and laid down for himself an excessively austere rule of life, subjecting himself to every kind of self-mortification, and legend asserts that he lived in a tub, though the truth of this statement has been very much questioned. While on a voyage to Ægina, D. was seized and sold as a slave in Crete, and after being bought by Xenias he became the tutor of his children. It was during this time that he is reported to have met Alexander the Great, causing the latter to remark that if he were not Alexander he would like to be Diogenes. The philosopher is said to have died at Corinth on the same day as Alexander. His system of philosophy had a practical basis, and he ridiculed all men whose pursuits were not aimed at some practical end. See J. B. Mayor, *Sketch of Ancient Philosophy*, 1889.

Diogenes Laërtius, Gk. author who lived probably towards the close of the second century A.D., though little is known about his exact date. He wrote the lives of the philosophers in ten books (Eng. trans. by C. D. Yonge, 1853), which has been of great value to later writers on the subject. At the same time he made bad use of his information, as his work is not a methodical compilation nor is it an authority on philosophy, though it has preserved some interesting facts. See R. Hope, *The Book of Diogenes Laërtius*, 1930.

Diogenes of Apollonia, Gk. philosopher of the fifth century. He was a pupil of Anaximenes, whose doctrine, that air is the source of all being, he revived and propagated. According to this philosophy, all other substances are derived from air—which gives also life and soul to all things—by a process of condensation and rarefaction, in which mind and matter alike share.

Diognetus, Epistle to, Gk. Christian work of the second or early third century of our era. In character it is an 'apologia,' propounding and answering questions as to the God and faith of the Christians. Its unknown author appears to have been familiar with the teaching of St. John and of St. Paul.

Diomedes, or **Diomedes**, son of Tydeus, a hero at the siege of Troy. After the death of Adrastus, whom he succeeded as king of Argos, he led eighty ships against Troy. Homer represents him as bold and enterprising, a favourite of Athene, with whose help he wounds Ares and Aphrodite. With Odysseus he undertakes many adventures, including the stealing of the palladium from the acropolis of Troy. He was worshipped as a hero in Greece and in parts of Italy.

Diomedes Islands, group of three small is., situated in Behring Strait, about half way between the two continents of America and Asia. The group consists of Ingalik and Imaklit Is. and Fairway Rock.

Diomedes, see ALBATROSS.

Dionaea Muscipula, the Venus' flytrap, a genus of Droseraceæ. The leaves form a small rosette on the ground, and are composed of a lower winged part and an upper expanded part fringed with teeth. Inside the upper part are numerous tiny digestive glands, and three long, delicate, hair-like organs. If one of these organs be touched by an insect the sides of the leaf collapse, the teeth interlace, and as the captive decomposes its products are absorbed by the plant.

Dion Cassius (Cocceianus) (A.D. 155-c. 230), Gk. historian, b. at Nicæa in Bithynia. In A.D. 180 he went to Rome, and when Pertinax became emperor, D. was made prætor, A.D. 193, which office he took up in the reign of Severus in A.D. 194. He was also made consul about the year A.D. 220, and again in A.D. 229, and after this he retired to Nicæa, where he spent the rest of his life. D. wrote several histories, among them one of Rome from the earliest times.

Dion Chrysostomus ('the golden-

mouthed'), Gk. orator, b. at Prusa in Bithynia, near the middle of the first century A.D. He received a good education and travelled considerably when young. After leaving Rome, owing to Domitian's hatred of philosophers, he is said to have visited Mysia, Thrace, and other places, disguised as a beggar. He returned to Rome under Trajan, and after visiting Prusa went back to Rome, where he died about A.D. 117. There is a good ed. of his orations by Reiske.

Dion of Syracuse, son of Hipparinus, and a native of Syracuse, b. at the beginning of the fifth century B.C. His sister married Dionysius the Elder, and he himself married her daughter. This Dionysius showed the greatest confidence in D., but his son, Dionysius the Younger, disliked him and refused to be guided by him, probably because their ways of living were so different, as D. was a man of stern life, whereas Dionysius was exceeding dissolute. He was therefore banished to Athens, but he succeeded in 357 B.C. in defeating Dionysius the Younger and in conquering Syracuse. The Syracusans, however, objected to his strict rule, and as the result of a conspiracy he was murdered in his own house in 353 B.C.

Dione, one of the Titans, mother by Zeus of Aphrodite. Homer represents her on Olympus welcoming and consoling her daughter who has been wounded before Troy.

Dionne, Narcisse Eutrope (1848-1917), Canadian historian, b. at Saint-Denis de la Boutellerie. He was educated at Sainte-Anne's College, the Quebec Grand Seminary and Levis College, and obtained his medical degree at Laval Univ. in 1872. After a short career as a physician, he adopted journalism as his profession, and his erudition and historical research into the early days of Quebec gained him the librarianship of the Quebec Legislature in 1892. He wrote biographies in Fr. of Jacques Cartier (1889), Samuel Champlain (1891-1906), C. F. Painchaud (1894), and others. His works also include: *Quebec et Nouvelle-France* (1905-12), *Les Ecclesiastiques et les royalistes français réfugiés au Canada, 1791-1802* (1905), *Galerie historique* (1899-13), *Les Canadiens-Français* (1914).

Dionne Quintuplets, five children, Yvonne, Annette, Emilie, Cecile, and Marie, born to Mrs. Elzire Dionne on May 28, 1934, at Callander, Ontario. Dr. Allan Roy Dafoe (1883-1943) attended Mrs. Dionne and achieved fame for his successful delivery of the five children.

Dionysia, the festival held in honour of Dionysus (Bacchus), the god of wine. These were Gk. festivals, and the Attic ones were four in number, the Country Dionysia, the Lenaea, the Anthesteria, and the Great Dionysia. The first of these feasts was celebrated in the month of December, accompanied with processions and dramatic performances. The second was a city festival, celebrated during the next month. The Anthesteria lasted for three days, the ceremonies including a visit to the temple of Dionysus in Limnae by the wife of the king, and a feast to dead souls, with a *libatio* to Hermes, and it was

said that during this festival the shades walked the earth. The Great Dionysia, the last of the four, consisted of a lyrical festival, followed by dramatic performances, and at the beginning of this festival the statue of the god was taken from the temple of the theatre. The



E. Buchanan

THE THEATRE OF DIONYSUS AT ATHENS

Dionysia were great public holidays. See R. P. Winnington-Ingram, *Euripides and Dionysia: An Interpretation of the Bacchae*, 1948. See also **BACCHUS**.

Dionysius, patron saint of France, see **DENIS**.

Dionysius the Elder (431 or 430-367 B.C.), a tyrant of Syracuse. Having by 405 B.C. constituted himself ruler of Syracuse, he made his position secure by a bodyguard of 1000 men, and by marrying the daughter of Hermocrates. In 397 B.C. he attacked the Carthaginians, and would have been defeated had they not been ravaged by a pestilence. After peace was made, D. turned his attention to the Gk. cities, and finally succeeded in conquering Rhegium, which had always been hostile. From this time to 367 B.C. his power was absolute, having jurisdiction over most of Sicily, and indirectly over a large part of Italy. Although his rule was tyrannical, D. did much for the benefit of Syracuse, both in making it a magnificent city and in encouraging literature.

Dionysius the Younger, a tyrant of Syracuse, succeeded his father, D. the Elder, in 367 B.C. Indolent in disposition, he rejected the counsel of Plato and followed the advice of dissolute people. He was compelled to leave Syracuse and went

to Locri, which tn. he ruled as a tyrant for some years. He returned to Syracuse, but was again compelled to depart to Corinth, having surrendered to Timoleon, 343 B.C.

Dionysius (surnamed **Halicarnassus**, from Halicarnassus, his bp.), Gk. scholar of the reign of Augustus. He went to Rome about 30 B.C., where, after long and profound study, he wrote 'in the pursuit of truth and honesty,' a hist. of Rome, with the express purpose of reconciling his Gk. compatriots to the yoke of their Rom. conquerors. The work is still a valuable source of information.

Dionysius of Colophon, Gk. painter who lived about 500 B.C. He was a contemporary and rival of Polygnotus of Thasos, and was nicknamed 'Painter of Men' (*Anthropographos*), because he aimed at portraying men as they really were, while Polygnotus gave his figures a touch of ideal or god-like beauty. He painted a portrait of Aristarchus carrying a figure of tragedy.

Dionysius the Areopagite, an almost legendary personage of whom little more is known than that he was converted to Christianity by St. Paul at Athens (Acts xvii. 34), and that he was a member of the court of Areopagus. Eusebius says he became the first bishop of Athens. He is said to have suffered martyrdom under Diocletian, some say in Athens, others say in Paris at Montmartre, and these hold that he is the patron saint of France, 'Denys' being the French form of Dionysius. The author of the works attributed to D. was probably a Syrian monk. The two most famous of these are the *Mystical Theology* and the *Divine Names*. Their teaching influenced the entire spirituality of the W. through St. Augustine and St. Thomas Aquinas.

Dionysius Thrax, or the Thracian, Gk. grammarian who lived about 100 B.C. He taught for some time in Rhodes and then had a school in Rome. He wrote the first scientific Gk. grammar, a work which was very popular, and highly valued in ant. times. His notes on the *Iliad* are included in the *Scholía Veterāna*.

Dionysius of Byzantium, Gk. poet of the second century. He wrote elegiac verses and an account of the navigation of the Bosphorus coast-line. Fragments of this work appear in various collections, e.g. in the *Geographi Minores* of Didot.

Dionysius (self-named in humility **Exiguus**, or 'the Little') (b. c. A.D. 500), Gk. theologian. He went to Rome and lived in a convent, where he made collections of the first fifty canons of the apostles, the canons of ten councils, and of thirty-eight decretals of the popes, all of which were recommended for use in 800 by Charlemagne. He introduced the method of counting the years from the birth of Christ instead of from the death.

Dionysius (surnamed **Periegetes**, 'the describer of the earth'), Gk. poet who lived probably in the early days of the Rom. empire. He wrote a *Descriptio Orbis Terrarum* in 1186 hexameter verses. His work, founded on that of the first scientific geographer, Eratosthenes,

caused him to be considered by the later Gks. as the geographer *par excellence*. See Bernhardt's *Geographi Graeci Minores*.

Dionysius Cato, author of a work entitled *Dionysii Catonis Disticha de Moribus ad Filium*, which has been called a 'catechism of morals.' It consists of a preface, a series of injunctions such as *parentum ama, diligentiam adhibe*, etc., followed by 144 moral precepts. There has been much speculation as to the authorship and date of the work. It is frequently mentioned by Chaucer, and it seems to have been used as a school-book in the Middle Ages.

Dionysius Epiphanes, see ANTIOCHUS.

Dionysus, see BACCHUS and DIONYSIA.

Diophantine Equations, so-called after Diophantus, a Gk. mathematician, who probably lived in the third century A.D. Diophantus pub. a work called *Arithmetica*, that included arithmetic and algebra. This book contains several problems that have been too difficult for any mathematician to solve. The type of problem may be illustrated by the following simple example. In how many ways can a Rugby team score nine points? If x is the number of tries scored, y the number of goals, z the number of dropped goals, p the number of penalty goals then $x + y + z + p = 9$. Such an equation is known as a D. E. In this case we can have $x = 3, y = 0, z = 0, p = 0$; $2, 0, 0, 1$; $1, 0, 0, 2$; $0, 0, 0, 3$; $0, 1, 1, 0$, i.e. five ways in all. The difficulty in solving such problems is that each one must be worked out *ab initio*, as there are no recognised algebraical principles that lead to their solution.

Diophantus, Gk. writer of Alexandria. His date is a matter of conjecture, some writers giving the fifth century, and others some time earlier. He was a writer on algebra, and his *Arithmetica*, of which six books are preserved, treats of numbers algebraically. There are one or two eds. of D.'s work, and several paraphrases. See T. L. Heath, *Diophantus of Alexandria, A Study in the History of Greek Algebra*, 1910.

Diopside (Gk. *δίς*, twice, twofold, and *ὄψις*, appearance) a variety of pyroxene, containing no alumina. It is composed of silica (55.7), magnesia (18.5), and lime (25.8).

Diopsis, a dipterous (two-winged) insect given by most entomologists as the type of the family Diopsidae in the group of *Muscode Acalyptata*.

Dioprase, or Emerald Copper Ore, a rare ore of copper found by analysis to consist roughly of 38 per cent silica, 50 per cent copper oxide, and 12 per cent water. It occurs in beautiful green transparent or translucent crystals, similar in appearance to emeralds.

Dipter (Gk. *δίς*, through, and *πτερόν*, to see), the unit of refractive power of a lens, having a focal length of one metre. The ratio of one metre to its focal length is the expression of the numerical power of a lens in Ds. A lens of +1 D. is a convex lens having a focal length of one metre, of +2 Ds., a focal length of half a metre, etc. See LENS.

Dioptrics, that part of the science of optics which deals with the refraction of rays of light when passing through media such as glass and water. It treats particularly of the laws governing the refraction of light by lenses.

Diorama, see PANORAMA.

Diorite, a granitoid rock found in abundance in Germany and N. America, rarely in England, but frequently in the Scottish Highlands and Galloway. D. is composed essentially of felspar and one or more of the ferro-magnesian minerals, such as hornblende, augite, biotite, or hypersthene. In colour it is greyish-white to almost black. Ds. from Guernsey are much valued as a road-metal in the S. of England.

Dioscorea, the chief genus of Dioscoreaceae, is noted for its farinaceous tubers which are largely cultivated as food in the tropics and are known as *yams*.

Dioscoreaceae, family of monocotyledonous plants. They nearly all grow in the tropics, but *Tamus communis*, the black bryony, a common climbing plant of hedges, grows in Britain; many are nutritious and others are highly dangerous.

Dioscorides Pedacius, or **Pedanius**, Gk. physician (Διοσκόριδης). He is supposed to have been a native of Anazarba in Cilicia and to have lived in the first or second century A.D. His chief work was a treatise on the *Materia Medica*.

Diosouri, see CASTOR AND POLLUX.

Dioscurides, gem engraver who lived about the time of Augustus, whose seal he engraved. He is one of the four engravers recorded by Pliny.

Diosgyör, tn. of Hungary, situated in the prov. of Borsod. In the vicinity there are coal mines. Pop. 7500.

Diosma, genus of herbs, inhabiting the Cape of Good Hope. The plants are heath-like, with white or red flowers, and belong to the family Rutaceae, which also includes the orange. *D. crenata* and *D. serratifolia* contain a volatile oil, and the leaves have an aromatic taste. By the Hottentots they have long been in use medicinally.

Diosod, tn. and com. of Rumania 22 m. S.S.E. of Debrecen, Hungary. Pop. 8000.

Dip, the angle which a magnetic needle makes with the horizon when the vertical plane, in which it moves coincides with the magnetic meridian. The total magnetic force acting upon a magnetic needle may be resolved into two components, one acting horizontally and the other vertically. When the needle is suspended so as to move in a horizontal plane, as in the mariner's compass, the horizontal force tends to make it lie along the magnetic meridian, but the vertical force has an inconsiderable effect. When the needle is suspended so as to move in a vertical plane at right angles to the magnetic meridian, the horizontal force can only act in the direction of the axis of suspension, and therefore the needle is only affected by the vertical component, and so stands vertically. When, however, the horizontal component is free to act, the needle takes up a position at an angle to

the horizon which increases as the position of the needle approaches the magnetic pole. The D. is subject to secular variation and in London has decreased from a maximum of $74^{\circ} 42'$ in 1723 to $67^{\circ} 9'$ in 1900.

Diphtheria (διφθερία, a skin or membrane), an acute infectious disease characterised by the formation on a mucous membrane, most commonly that of the pharynx (throat), of a yellowish false membrane. The disease was first specifically described and named by P. Brétonneau, of Tours, in 1826. In 1883 Klebs and Löffler identified the bacillus. The hist. of the micro-organism outside the human body is not well known. It appears to be ever present in a dormant state in the soil of all European and most Amer. countries, and is often found in the throats of subjects who present none of the characteristic symptoms. Some individuals seem to be altogether immune, while others take the disease in a very mild form. It commonly attacks children with fatal results, and may occur in scattered cases or as a widespread epidemic. Transmission appears to be by direct contact with an infected person, or by approaching him when he is coughing, or using a drinking utensil infected by him. The early symptoms are a sore throat and a general feeling of uneasiness, such as might accompany a bad chill. A swelling of the glands of the neck and an inflamed condition of the tonsils next make their appearance; the temperature rises, and the beginning of the false membrane is seen in yellowish patches. These gradually spread and unite to form a firmly adherent membrane with the appearance of wet parchment. If removed, it leaves a raw ulcerated surface on which it speedily re-forms. When not checked, the exudation spreads upwards and downwards, invading the nasal passages and the lower respiratory passages. There is great pain and difficulty in swallowing and the obstruction caused by the membrane may lead to death from asphyxia unless a new airway is provided by passing a metal tube directly into the trachea (windpipe) through an incision made in the patient's neck for the purpose (*tracheotomy*). At the same time, the effects of the bacterial poisons in the blood are to be noticed. The heart becomes weakened, albumin is present in the urine, and progressive anemia is observed. The poison has a marked effect upon the nerve tissues, causing temporary and local paralysis, which may persist for some time after the other symptoms have been suppressed. The paralysis often affects the soft palate and pharynx, causing the food to be returned through the nostrils, or the eye may be affected, causing disturbances of vision. Recovery is a lengthy process, and the period of convalescence demands great care in consequence of the recrudescence of some of the early symptoms or of possible complications, to which the weakened state of the D. patient renders him liable. The antitoxin mode of treatment overshadows all others; in fact, no other has been

productive of good effects. The serum is obtained from a horse which has previously been inoculated with a mild culture of *D. bacilli*. The animal elaborates a substance which combats successfully the bacterial toxin and henceforth becomes immune from the poison. The serum withdrawn from the animal is injected subcutaneously into the *D.* patient, usually with the prompt cessation of the most exhausting symptoms. Injection of the serum is also recommended as a preventive measure for persons likely to come in contact with *D.* cases, and although a slight

Diphthong (Gk. δι, double; φθόγγος, sound), a compound sound, composed of two vowel sounds joined to form one sound distinct from either of the two original. There are four sounds in Eng. which are pure Ds. These are $i = a + i$, as in the word aisle; $u = i + u$, as in the word duke; $oi = au + i$, as in joist; and $ou = a + u$, as in south. Many vowels written as double ones in Eng. are not Ds. in sound.

Diplegia, Infantile, see BIRTH-PALSY.

Diploidscope (Gk. διπλός, double and σκοπεῖν, to see, view), an optical instrument



Keystone

DIPLODOCUS

Diplodocus Carnegii (Upper Jurassic): a representation in a Canadian park

swelling of the joints has been observed in persons so inoculated, no permanent harm has ever been traced to the treatment. *D.* has not altogether shared in the general decline in the prevalence of epidemic diseases induced by superior sanitary conditions. There seems to be a periodic rise and fall in the numbers of cases recorded, and some attempt has been made to connect its prevalence with periods following upon a long drought, but without arriving at any satisfactory conclusion. There is no doubt, however, that when it does become virulent, it spreads with great rapidity by means of the contact of children in school. Good results have recently been obtained in protecting children from *D.* by immunisation. Sev. injections of *D.* toxoid are given, i.e. of the toxin which has been rendered less harmful by treatment e.g. with formalin; mixtures of toxoid and antitoxin are also used. The Schick test has been devised as a means of ascertaining which children are naturally immune from *D.*, and also as a method of diagnosing the disease in its early stages.

for indicating the passage of the sun or of a star over the meridian, and used for the purpose of determining the correct time by transit observations. It consists of a triangular prism which has two silvered planes and one (in front) unsilvered; one of the silvered planes coincides with the plane of the meridian. The coincidence of the two images formed by a single and double refraction of the prism records the transit accurately if the adjustment is correct. Steinhell's 'transit prism' grew out of the work of Bloxam, Dent, and Plössel on the *D.*

Diplodactylus, a genus of lacertilian reptiles, is closely related to the *Gecko* in the family Gekkonidae. The generic name *D.* ('double fingered') is derived from the two plates at the end of each digit, between which the claw can be retracted. A common example of these lizards is *D. vittatus*, and all the species are found in Australia.

Diplodocus, genus in the order Sauropoda, of the Dinosauria. The species were enormous reptiles about 80 ft. in length, with an abnormally long neck and

tail and small head, about one-thirtieth the size of the body. The vertebral column consisted of 15 cervical vertebrae, 11 dorsals, 4 sacrals, and at least 37 caudals. The generic name *D.* ('double beam') refers to the peculiar arrangement of the chevron bones underneath the caudal vertebrae, whereby protection was afforded to the caudal blood vessels when the tail was dragged along the ground. The high position of the external nares (nostrils) and the long tail indicate that it was probably aquatic, but the limbs are plantigrade and wholly terrestrial. The teeth are slender and cylindrical, arranged in descending order of size from the front of the mouth. *D. longus* and *D. carnegii* have been found in Upper Jurassic of Wyoming.

Diplomacy, the term applied to the art of conducting the affairs of one country with regard to those of another, owing to the intercourse which must take place between countries or states. This right of employing diplomatic agents belongs to those states only which have absolute power of their own and are not dependent on some other country. But all Brit. dominions are empowered to appoint their own different diplomatic representatives in foreign caps. and many have now done so. In England, nominally, the power to adjust relations with other countries rests with the king, but it is actually managed by others, the chief of whom is the secretary of state for foreign affairs. These officials may be either ambas., the actual representatives of the sovereign, envoys, or *chargés d'affaires*. When a man is in foreign ter., acting as a diplomatic agent for his country, he is judged by the laws of his own land, and only those laws can touch him. He has also a certain rank by reason of his commission, and ambas., as representatives of the sovereign, have an extremely high one. It has always been a custom, also, to adopt one language as a medium for diplomats—the one now used being Fr. See also DIPLOMATIC SERVICE, BRITISH.

Diplomatics (Gk. *διπλωμα*, (1) anything folded, or (2) a licence, from *διπλός*, double), the science of diplomas or of anc. writings, literary and public documents, letters, decrees, charters, codicils, title-deeds, court-rolls, chartularies, etc., which has for its object to decipher old writings, to ascertain their authenticity, their dates, signatures, and the general circumstances of their making. By the light of the internal evidence afforded by old public or private records, much may be inferred with respect to the customs and manners of former times, but although *D.* may be looked upon as a means to that end, it is also a science in itself, and one which requires no little degree of skill in application to attain results of any permanent value. The deciphering of anc. writings is generally known in these days by the name of palaeography (*q.v.*), a science the importance of which is now so universally recognised that most civilised countries of the day have instituted chairs of palaeography in various seats of learning. From this specialisation in one

particular direction of the general science of diplomas, it becomes necessary to distinguish the function of *D.* as being concerned to-day, not so much with deciphering as with preservation, co-ordination, and classification of old documents to facilitate the work of the palaeographer, and with the particular duty of ascertaining their authenticity, not only from the internal evidence vouchsafed by the palaeographer, but from any reliable external source of verification, and particularly from the form itself of any particular diploma or document. Sooner or later in the progress of civilisation it becomes necessary for a nation, not only to adopt set forms in documents, for the custody of its public Acts. Yet it was not before the Middle Ages that the European nations as a whole attained to anything like the precision of the anc. Romans in this respect. In England the preservation of both public and private documents was left rather to the discretion of those bodies or persons who were more personally affected by those documents than to officials—like the present keeper of the Public Record Office—whose duty lay towards the nation as a whole. Various courts from an early date kept records of decisions or grants made in such courts inscribed on the court rolls; the chancery very early kept a record of all royal grants in the shape of charters, privileges, and immunities, together with writs of process, and the chancery rolls from the beginning of the thirteenth century are both full and complete; and there are also to be found countless deeds of conveyance of real property, not only in the Public Record Office, but in the archives of municipalities, private families, and in the Brit. Museum.

The science of *D.* is one which is largely concerned with the investigation of forms. In this direction it is curious to notice how far the anc. Romans were in advance of mediæval Europe, and how remarkably deficient they were in the power to make use of their archives. In point of mere form, the Romans would appear to have attained such precision and directness of statement that in the Middle Ages all the advancing nations employed the set styles of the Rom. documentary system. This may have been due partly to the fact that a great part of Europe inherited its legal system directly from the Rom. civil law, but it is more probably to be accounted for by the fact that the few who could write, and the still fewer who could compose a formal document, had acquired the necessary learning through the Church of the Holy Rom. Empire. After the revival of learning and the passing of the dark ages, grants, charters, ordinances, proclamations, and all manner of official or public documents were composed in Lat., and whether avowed or not, there can be but little doubt that the Renaissance gave, not only the language, but the forms of the Romans, to all manner of documents. Diplomas in the particular sense of royal charters or grants of privileges all reveal, in the earlier stages of their history, a striking uniformity of

style and arrangement—a style which in the title and preamble to a modern Act of Parliament in England has by no means disappeared. The Fr. diplomas of the Carolingian and Merovingian periods, much after the style of Rom. lawyers, who were accustomed to mingle statements of the law with moral, religious, and philosophical reflections, generally began with an invocation, followed in order by the full name and style of the monarch, a preamble explaining shortly, or at considerable length, the motives, moral or religious, of the grant; the subject-matter of the grant; penalties against all who should infringe the privilege or immunity granted to the donee; and the signature of the monarch, and, in Lat., the date of the grant. Later, an added security to authenticity was given by the use of seals. In the earliest periods, the Roms. employed the term *diploma* to signify nothing more than a letter of licence to use public conveyances, the letter itself being inscribed on two leaves, or double tablets, hence the name. Subsequently the term embraced all public grants. Apart from the destruction of a great number of copies of brazen tablets by the burning of the capitol, and the depredations of the invading Gauls, there is, according to Mommsen, no dearth of documents from the early Rom. times. The sacred records of the Samnites, it is known, were inscribed on linen rolls, and there is evidence of the existence of written lists of the Rom. magistrates, books of oracles, clan registers, and Alban and Rom. calendars. No such documents are extant, but they were kept in the Rom. archives and would have fulfilled the purpose of instructing future generations but for the deficiencies of Rom. historians of the succeeding age. In England the medieval historians were not slow to avail themselves of the information derivable from anct. charters. Much, however, has been lost of the hist. of W. Europe between the time of Charlemagne and the twelfth century.

On the continent of Europe the science of D. would appear to have dated from the revival of learning in the Middle Ages, when, as a consequence of the recognised importance of documents in verifying facts and establishing the existence of rights, both public and private, the value of diplomas as evidence was defended by a Benedictine monk named Mabillon in a work entitled *De Re Diplomatica* (1681). Such a work with its scientific analysis of the principles to be employed in investigating diplomas was of especial value at a time when the practice of forging diplomas and other documents was as constantly resorted to as it had been in the time of the forged capitularies of Benedict the Levite and the false decretals of the Pseudo-Isidore (see Pollock and Maitland's *History of English Law*), the latter being a collection of elaborate mosaics made up out of phrases from the Bible, the fathers, genuine canons, genuine decretals, and the West Goths Rom. Law Book, the whole designed to establish the superhuman origin of ecclesiastical power and

the sacrosanctity of the persons and property of bishops. The monks, too, were accustomed to falsifying charters of grants of land, and they were justified in many instances, inasmuch as their title rested on prescriptive possession. Having, therefore, no deeds or charters to prove a perfectly lawful ownership of church lands, they set to work to produce such charters in set form. There were, however, wholesale forgeries of papal bulls and church briefs at the end of the twelfth century in England, and a science which can lay claim to detecting ingenious forgeries in anct. records necessarily does much to ensure a respect for anct. institutions which have been evolved from a long line of unimpeachable precedents.

See C. Toustain and D. Tassin, *Nouveau Traité de diplomatique*, 1750–65; B. Thorpe, *Diplomatarium Anglicum Ævi Saxonici*, 1865; E. A. Bond, *Facsimiles of Ancient Charters in the British Museum*, 1873–78; F. Leist, *Urkundenlehre*, 1893; G. F. Warner and H. J. Ellis, *Facsimiles of Royal and other Charters in the British Museum*, 1903.

Diplomatic Service, British. Great Britain is represented abroad in regard to its international interests by diplomatic agents and occasionally by consuls, though these latter are in general concerned exclusively with the interests of Brit. subjects resident abroad. The former include *ambassadors* or *envoys* who are officials permanently accredited to the court of a foreign state, and *chargés d'affaires*. A *chargé d'affaires* is either one who acts as deputy for an ambassador during the temporary absence of the latter, or one who is accredited as Brit. representative to some foreign court of minor importance. Ambas. are appointed by an derive their authority from sealed letters of credence (see CREDENTIALS) under the sign-manual addressed to the sovereign or president of the country to which they are accredited, and from instructions under the sign-manual to themselves personally. Consuls may represent Great Britain in its international relations only when expressly vested with diplomatic powers. Ambas. are assisted by various other attendants known as *attachés*. These latter have to serve a probationary period, after which they become eligible for appointment as third secretaries. First and second secretaries constitute an intermediate class between third secretaries and counsellors. *Counsellors* in the D. S. are appointed to all embassies and to the legations at Peking, Téhéran, and Cairo. All the members of the D. S. are expected to take their turn in whatever part of the world their services may be required, and every counsellor, secretary, or attaché, whether married or unmarried, must be prepared to go to the post at which the requirements of the public service demand his presence and to which he may be appointed. As announced by the Gov. in March 1946, women are now admitted to both the Diplomatic and Consular Services on equal terms with men. There is, however, a general marriage bar which the Foreign Secretary has power to waive

in exceptional circumstances. See T. H. S. Escott, *The Story of British Diplomacy*, 1908; Lord Ponsonby, *Democracy and Diplomacy*, 1915.

Diplopia, see under EYE.

Dipnoi (Gk. $\delta\iota$, twice; $\pi\nu\sigma\iota$, breathing), or **Dipneusti**, a sub-class of fishes, is of great interest for its many peculiar features, some of which are typical of amphibians. The D. are all extinct but for three genera, the *Ceratodus* (q.v.), of Queensland, *Protopterus*, of Africa, and *Lepidosiren*, of America, but many fossils belonging to the group have been discovered, all either Palæozoic or Mesozoic. The importance of the possession of a double-breathing apparatus is seen in *Protopterus* and *Lepidosiren*, both of which have gills as well as two lungs. They are mud-fishes which live in tropical swamps; when the water is abundant they breathe by means of their gills, when it has dried up by means of their lungs. *Ceratodus*, however, lives in the deep pools of rivers, and it is not known definitely that the power of its single lung is ever tested.

Dipper, or **Water-Ousel**, the popular term for passeriform birds of the genus *Cinclus*. Both wings and tail are short, the beak is fairly short and straight, and the general colour of the bird is brown, the throat and part of the breast being white. It inhabits streams of Europe, Asia, and America, feeding on molluscs and insects, and is a good diver. *C. aquaticus* and *C. albicollis* are Brit. species.

Dippers (religious sect), see DUNKERS.

Diprotodon, genus of kangaroo found in fossil state in Australia; it is characterised by a peculiarity of dentition.

Dipsacaceæ, order of dicotyledonous plants which is nearly allied to the Compositæ. *Dipsacus sylvestris* is the common teasel found on waste ground in Britain, and *D. fulanum* is the fuller's teasel which has hooked bracts, and the prickly fruit-heads are used in finishing woollen cloth.

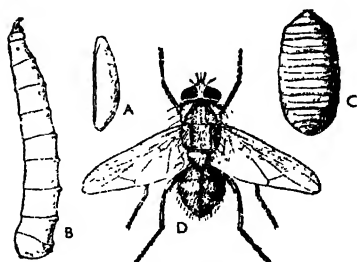
Dipsas, genus of Amblycephalidæ, are snakes which have much in common with the family Colubridæ. The members of the genus are found in S. America and are harmless, though in appearance they resemble poisonous species.

Dip-sector, astronomical reflecting instrument, similar to the sextant in principle, for ascertaining the dip of the horizon. In 1803 Wollaston described in the Bakerian lecture a D. of his invention; Troughton constructed these instruments.

Dipsomania, see under ALCOHOLISM; **DRUNKENNESS**; **INBERIATES**.

Diptera (Gk. $\delta\iota$, two; $\piτερον$, wing), large order of insects, of which over 40,000 species have been classified, but are not believed to nearly represent all of the species which are in existence. They are distinguished from other insects by the presence of one pair of wings, though in a few cases, e.g. the flea, these are absent or rudimentary, and the hind-wings are frequently represented by two pin-like, knobbed processes called halteres. The wings are never very large, they are transparent and membranous. The flattened

head is united to the body by a long and very flexible neck, the divisions of the thorax are greatly fused, the mouth-parts are adapted for piercing or suction, and often have a retractile proboscis. The metamorphosis of the flies is complete, the larva being usually a maggot which has no thoracic legs and only a minute head; the organs it contains differ completely from those of the mature creature, and in undergoing its metamorphosis the contents of the body break down into a creamy substance from which the new organs of the adult are developed. It is usually only the females which have blood-sucking habits, and their larvæ are nearly



DIPTERA

A, Egg, magnified ten times; B, larva, magnified four times; C, puparium magnified four times; D, horn-fly (*hematobia serrata*), Europe, magnified eighteen times.

always aquatic. The D. are divided by most zoologists into five groups, the Nemocera, Brachycera, Aschiza, Schizophora, and Pupipara, and the Aphaniptera, or fleas, are usually included among them, though sometimes they are allotted the dignity of an order to themselves.

Dipterocarpaceæ, order of dicotyledons, contains over 300 species, most of which are trees. The calyx enlarges greatly during the ripening of the fruit, which is usually a nut. All the species produces such substances as resin and oil: *Dryobalanops camphora*, a kind of camphor, and *Dipterocarpus tr. nervis*, a resin which is made into plasters for ulcers in Java.

Dipterus, oldest known fossil genus of dipnoid fish in the family Ctenodontidæ.

Diptych, two tablets made of carved ivory, etc., and united by leather hinges; their inner surface was covered with wax. The Romans wrote in them the names of the consuls and principal magistrates. They were also used in monasteries, to contain the names of the bishops and benefactors. The name is applied to pictures and bas-reliefs covered by two carved or painted shutters.

Dipyre (Gk. $\delta\iota$, two, and $\piυρ$, fire), silicate of alumina and lime, which, when subjected to heat, first becomes phosphorescent and then fuses: it occurs as a transparent, tetragonal mineral in the Pyrenees.

Dirac, Paul Adrien Maurice (b. 1892), Eng. mathematician; educated at the Univ. of Bristol and Cambridge. He was a fellow of St. John's College, Cambridge, and in 1932 was appointed Lucasian Prof. of Mathematics. In recognition of his valuable work in connection with quantum mechanics, he was in 1933 awarded the Nobel Prize (with Edwin Schrödinger). His *Principles of Quantum Mechanics* was pub. in 1930.

Dirce, wife of Lycus, King of Thebes. She was dragged to death by a wild bull, to whose horns she had been bound by Amphion and Zethus, sons of Antiope, the divorced wife of Lycus.

Dircks, Henry (1806-73), Eng. civil engineer and author, inventor of the optical illusion 'Pepper's Ghost.' As an apprentice in a mercantile firm he studied mechanics, chemistry, and literature, and later became a practical, then a consulting engineer, and member of the Brit. Association. He wrote *Popular Education, Inventions and Inventors, Scientific Studies*, etc.

Direct Action. A phrase that came into popular use in England about the year 1910, chiefly in relation to labour unrest and the Women's Suffrage Movement. Like many slogans invented in times of agitation, it has no precise definition, but varies, according to the mood and character of the user, from a small local strike to a violent national uprising. For some years before the 1914-18 War, an increasing distrust of gaining their ends by constitutional methods was steadily growing among wage-earners at home and abroad; while such bodies as the Independent Workers of the World and the Syndicalists were increasing their activities and urging swifter methods of change. Growing international uneasiness, the tension in Ireland, the Agadir (*q.v.*) incident and the revolution in Portugal were symptoms of a growing willingness to appeal to force, and in the increasingly war-like atmosphere the plea that the workers should use their numerical superiority in a more direct manner than had been done theretofore attracted serious attention.

Direct and Retrograde, terms used in astronomy to indicate the apparent motions of a planet as seen from the earth. Its motion is said to be D. when it is progressing from right to left towards its eastern elongation and R. when it is travelling towards its western elongation, apparently in the opposite direction.

Direct Current, see under ELECTRICITY SUPPLY; ELECTRIC GENERATOR.

Director, in law, see COMPANY, and PUBLIC PROSECUTOR.

Directorium, or **Ordo**, a list printed every year by authority of a Roman Catholic bishop; it contains directions to ecclesiastics as to the office for each day.

Directory, alphabetical list or index giving various kinds of information. Most useful in Great Britain is the Post Office Directory, compiled for dists.; the largest is the London one, which contains information under the following headings: 1. *Court D.*: names of people occupying private houses, arranged alphabetically,

but persons having any rank or title precede others of the same name. 2. *Official D.*: names of persons holding any gov. or law office. 3. *Street D.*: names of the prin. streets of London, with their terminals and intersections with other streets named, and a selection of the inhaab. 4. *Law D.*: list of judges and official staff of all the courts and of the police force. 5. *Parliament D.*: list of all peers of the United Kingdom, members of the House of Peers, members of the House of Commons and names and places for which they sit. 6. *Postal D.*: All information connected with the transmission of letters, parcels, etc. 7. *City, Municipal, Parochial, and Clerical D.*: gives a large amount of miscellaneous information. 8. *Commercial D.*: list of wharves, booking-offices, railway-carriers, etc. 9. *Banking D.*: list of bankers, etc. 10. *Suburban D.* The Post Office also pub. the *Telephone D.* There are also various Ds. compiled by individuals, e.g. Perry's *Mercantile Guide*, Kelly's *Customs Tariffs*, Stubbs's *Manufacturers*, Macdonald's *English D. and Gazetteer*, Crookford's *Clerical D.*, *The Medical D.*, Willing's *Press Guide*, and *Who's Who*. There are also Ds. for the cos. and provincial cities and tns. Ds. are pub. in all countries of the world. All these are to be found at any good reference library.

Directory (1795-99), the name given to the gov. of France which followed the fall of the Convention or Terrorists and which ruled from Oct. 27, 1795, until its overthrow by Napoleon and the Abbé Sieyès on the 18th Brumaire (*i.e.* Nov. 9) 1799: The constituent bodies of the D. were the Council of Five Hundred, and the Council of the Ancients and the D. proper or *directoire exécutif* were elected by the former council from a list presented by the latter council. The members were Barras, Carnot, Légeux, Latourneur, and Rewbell. The D. gave its name to the *directoire* style of dress and furniture.

Directory of Public Worship, collection of rules for public worship drawn up by the Westminster Assembly of Divines in 1644. It was accepted by the General Assembly of the Church of Scotland and by the Scottish Parliament in Feb. 1615. It appears in vol. v. of *The History of the Puritans*, by D. Neal (1732-38).

Dirge (Lat. imperative *dirige*, direct thou), the first word of the opening antiphon used in Rom. Catholic offices for the dead, thus the term is applied to a piece of music which is suitable for funeral ceremonies.

Dirhem, Arabic silver coin equivalent to about 45 grs. The Fr. gramme is now called D. in Turkey. See DRACHMA.

Dirigible Balloons, see AERONAUTICS; AIRSHIPS; BALLOONS.

Dirk, proper name for the dagger of the Scottish Highlander. It was worn either within the vest or with the pistol at the belt. The blade was some five inches long, and separated by a 'shoulder' from the short, cylinder-shaped handle, which was usually of horn or wood, and was often richly carved. It is worn to-day only with ceremonial Highland dress.

Diræ, see EUMENIDES.

Dirschau, see TZEZU.

Dirt Beds, see PURBECK BEDS, and GEOLOGY.

Dirt-track racing, sport of riding motor cycles round tracks made of loose earth. First introduced in Great Britain from Australia in 1927.

Dis, see HADES.

Disability, term in law which is applied to a person who is not allowed to do a particular thing. This D. may be due to physical causes, as in the case of those mentally deficient, or to the fact that a person is under age, or to a point of law, as in the case of an alien.

Disability Pensions, see DISABLED PERSONS; PENSIONS.

Disabled Persons. After the first World War the resettlement in civil life of men disabled during the war became a national problem. In 1915 an appointments board, under the ministry of labour, was constituted to place disabled officers and men. During the war and for some time after the Armistice disabled officers and men were given a course of training to fit them for civil employment in those cases where they could not follow their previous employment. To encourage employers to absorb the disabled the King's National Roll was inaugurated by Royal Proclamation in Aug. 1919. Those who engaged D. P. in the proportion of five per cent of their total staff of employees were given a certificate and were entitled to use a special seal on their business stationery. Such organisations as the Brit. Legion, St. Dunstan's Hospital for the Blind, etc., did good work for D. P. War-disabled men, through the operation of the Joint Substitution Board, were given preference over other applicants for work in Gov. Departments. At the beginning of the Second World War it was anticipated that the largely voluntary organisation which had existed up to that time of the resettlement of D. P. would prove inadequate. In 1941 the ministry of labour and national service set up a number of vocational training and rehabilitation centres, and under an interim scheme officers of the ministry undertook to place D. P. in suitable employment. At the same time an inter-departmental committee was appointed to inquire into the whole question of resettlement and rehabilitation. The committee's report was pub. in Jan. 1943 (White Paper Cmd. 6415), and legislation was introduced later the same year. As a result the Disabled Persons (Employment) Act, 1944, became law on March 1, 1944. For the purposes of this Act a disabled person is defined as one who on account of injury, disease or congenital deformity is substantially handicapped in obtaining or keeping employment, or in undertaking work in his own account, of a kind which apart from disablement would be suited to his age, experience, and qualifications. The Act applies to Brit. subjects of either sex over the age of sixteen, and in certain conditions to non-Brit. subjects also. The ministry provides vocational training or industrial rehabilitation courses at centres run as a

gov. charge, or arranges for suitable courses to be taken at technical colleges and institutes. In this case the fees are paid by the gov. The ministry may also pay the expenses incurred by those attending such courses, or contribute towards them. The ministry maintains a register of D. P. Registration is voluntary. Employers are obliged under the Act to employ a quota of registered D. P. The quota for any particular employer is determined by the ministry and bears relation to a standard percentage fixed for general application in consultation with employers' and workers' organisations. Special percentages are fixed for certain industries, as necessary. In certain types of employment vacancies are exclusively reserved for registered D. P. only. In the administration of the Act the minister of labour is assisted by a national advisory council.

Disarmament. Strenuous but hitherto fruitless attempts have been made since the war of 1914-18 to secure some mitigation of the pre-war evil of unrestricted competition in armaments, beginning at the peace negotiations at Paris in 1919. International principles were laid down in the covenant of the League of Nations to that end. Article VIII. opened with the statement that 'members of the League recognise that the maintenance of peace requires the reduction of national armaments to the lowest point consistent with national safety and the enforcement by common action of international obligations.' It then went on to entrust the council of the League with the task of formulating plans for the reduction of armaments and the supervision of the manuf. of munitions.

In Feb. 1921 the council appointed the Temporary Mixed Commission for the Reduction of Armaments, and that body considered the possibility of extending to land armaments the naval ratios adopted by the Washington Conference (*q.v.* (see also NAVY; SEA POWER); but eventually it reported to the League assembly that no scheme could be effective which did not provide some form of national security as a *quid pro quo* for the reduction of national armaments. The assembly adopted this principle in the Resolution (XIV.) framed by Lord Robert Cecil and M. de Jouvenel; and thereupon the Commission began to draft a general treaty of Mutual Guarantee or Assistance which the League adopted in 1923. The treaty was rejected by Great Britain on the ground, *inter alia*, that it would tend to revive military alliances within the League.

During the period 1920-23 the only effective agreements for the limitation of armaments were negotiated outside the League, and of these the most important was the Five Power Pact signed at Washington in 1922, by which the U.S.A., Great Britain, France, Italy, and Japan agreed on a limitation of cap. ships and aircraft carriers for fifteen years in the ratio of 5:5:1:66:1:66:3. The maximum tonnage per country and per vessel was also fixed. This Pact opened the way to the later naval conferences. In 1924 an

attempt was made to find a solution in the historic Geneva Protocol (*q.v.*). This document purported to rule out absolutely the legality of war except in certain cases; but again the Brit. delegates rejected the solution, because it did not provide for the reduction of armaments and repeated the Fr. attempts, made in 1919 and 1923, to turn the League into an 'International Body' which should command an international force. Another solution was provided by the Locarno treaties (*q.v.*) which conduced to a measure of stability in Europe until Germany denounced them in 1936.

During 1926-27 the League appointed a Preparatory Commission on D. preliminary to a World Conference. As regards land armaments, it made an attempt to limit the effectives of the sev. signatories and to cover arms and ammunition by budgetary limitation, but reached no unanimity. The ensuing Coolidge Conference on naval disarmament broke down, it being clear that the Fr. solution of a maximum total tonnage only, and the Brit. insistence on a maximum tonnage for each 'category' (*i.e.* for capital ships, carriers, submarines, etc.) were irreconcilable. In Jan. 1930 the Five Powers (Great Britain, U.S.A., France, Italy, and Japan) once more sent their delegates to a conference to consider the further limitation of naval armaments. This conference twice broke down. It resulted, however, in a Three-Power Pact by which Great Britain, the U.S.A., and Japan would lay down none of the replacement cap. ships of 35,000 tons each which they were entitled to build under the Washington Treaty during 1931-33 inclusive; and the U.S.A., Great Britain, and Japan undertook to proceed at once with the reduction of their cap. ships in numbers to 15, 15, 9, respectively, instead of waiting until the expiration of the Washington Treaty. Japan, however, subsequently denounced the Washington Treaty with the result that a further conference was called in London in 1935. Japan seceded from the Conference on the refusal of the other powers to agree to a 'common upper limit,' but in the spring of 1936 the remaining parties signed a tripartite treaty for qualitative limitation (*see* NAVY; SEA POWER).

On March 12, 1931, the Franco-It. naval agreement was pub., providing that each signatory might build two cap. ships up to 23,333 tons with 12-in. guns, up to the end of 1936, subject to scrapping a battleship for each new one; cap. tonnage of each signatory to be raised to 181,000 as against 175,000 in the Washington Agreement; each might complete aircraft carriers up to 34,000 tons; no further laying down of cruisers of more than 6.1-in. gun class; limitation of small cruisers to maximum replaceable before 1936. At a conference held at Geneva in Feb. 1932, M. Tardieu, then Fr. premier, presented a plan for the creation of an international army, and declared that the acceptance of this principle must be preliminary to reduction of armaments by France. This plan was, however, sidetracked, and Sir

John Simon opened with the Brit. proposals (Brit. Draft Disarmament Convention of March 1933), which included the prohibition or limitation of arms of an offensive character, the abolition of chemical warfare and of submarines, the reduction of the size of ships, and calibres of guns, and the establishment of a permanent D. commission. America and Italy supported these proposals. America also put forward a schedule for computing the military needs of every nation on the basis of its requirements for defence and the maintenance of internal order. Italy added the abolition of capital ships and tanks, and drew a precise distinction between qualitative and quantitative D. In April the general committee passed a resolution according to which certain offensive weapons were to be selected, the possession or use of which should be absolutely prohibited or prohibited to individual States and internationalised. Later, President Hoover presented proposals which included the abolition of chemical warfare, tanks, large mobile guns, bombing aeroplanes, and a closer definition of the 'defence' and 'police' components previously outlined by the Amer. delegate. More precise Brit. proposals, submitted in July, included the reduction of the size of battleships to 22,000 and cruisers to 7000 tons, with corresponding reduction of gun calibres. Submarines were to have a maximum size of 250 tons, mobile land guns a maximum calibre of 6.1 in., and tanks were to be restricted to lighter types. A resolution was passed embodying the general sense of these proposals and the other main proposals in vague terms. The U.S.S.R. was generally in disagreement with the conference, being in favour of complete D. all round as the only genuine basis for security; while Germany refused to accept any resolution which did not recognise the equality of status for all nations. In June 1933 a Pact was signed by Great Britain, Germany, France, and Italy by which these nations undertook (*inter alia*) to make every effort to ensure the success of the D. Conference. But as a general policy, D. received its first very serious set-back in 1934.

The Geneva Conference (which opened early in 1932) virtually developed in 1933 into a re-armament conference, owing to its resolution sanctioning 'parity of armaments' for Germany. As a result both of the divergence of opinion at this conference and of the rise of Hitler to power in Germany there was marked increase in armaments in most countries, and even the U.S.A. embarked on a greatly augmented programme. It became evident that there was no prospect of the acceptance of the Brit. Draft Disarmament Convention of March 1933, and negotiations on it were so fruitless that in Oct. of that year Germany resigned from the League of Nations. Early in 1934 the Brit. Gov. issued a Memorandum stating that it was ready to yield to the Ger. demand for a short-service army of 300,000 men but held out for the prohibition of 'para-military' forces by constant super-

vision, and repeated its earlier proposal for the abolition of military aircraft, subject however to adequate supervision of civil aviation to prevent misuse for military purposes. Not only Germany, but Japan, the U.S.A. and Russia were opposed to any system of international supervision or control of their armaments. Then followed fruitless negotiations between Fr. and Ger. in the course of which Fr. pointed out that in the period 1920-32 her budgetary credits for national defence had been reduced by £30,000,000 while Germany had carried out a programme for increasing her armaments to a level far above that authorised by the treaty of Versailles. It was ascertained in 1936 that Germany in the previous seven years had expended \$14,000,000 on rearmament. France flatly declined to accept any convention unless Germany re-entered the League and unless there were included a pledge of common action against the aggressor. In April 1934 Germany made known her intentions regarding her air armaments—a programme in which France saw a direct menace to her liberty. In May the general commission of the Disarmament Conference met in Geneva, the chief feature of which was the Amer. proposal to negotiate 'a universal pact of non-aggression' on condition that the U.S.A. took no part in European political negotiations or settlements nor used its forces for such settlements—a proposal which was a mere repetition of the Kellogg Pact. The Russian Gov., however, through Litvinov, rejected this proposal and favoured security and a practical system of guarantees—a counter proposal to which Sir John Simon returned an emphatic negative; and on June 11 the commission adjourned *sine die*. In 1935 Great Britain concluded an agreement with Germany under which the latter country was permitted to build up a navy to one-third of the strength of the Brit. Navy. In 1936 Great Britain decided on an all-round increase of armaments (see White Paper issued in March, 1936), her action being hastened by the uncertain situation which prevailed in Europe, through the militant policy of Italy, the denunciation of the Locarno Treaty by Germany, and the aggressive policy of Japan in the Far East. Furthermore, Japan claimed parity with Great Britain and the U.S.A. for her naval armaments.

No further serious attempts at D. were made, and the international situation steadily deteriorated, culminating in the outbreak of war in 1939. At the conclusion of the Second World War, the world was confronted with the weapon of atomic power, and the problem of controlling it, and the related question of D., again came to the fore. The subject was actively discussed at the General Assembly of the United Nations which met in New York in the autumn of 1946. The question of a troop census of all nations was debated, but only when this was abandoned was it possible for the political committee of the United Nations to draw up a resolution for presentation to the general assembly. This resolution was adopted

by the assembly by acclamation on Dec. 14, 1946. By its terms an early general regulation and reduction of armaments and armed forces was recognised. It also contained a recommendation that the Security Council should expedite practical measures to this end, to be generally and not unilaterally observed, together with provision for an international convention for the control and inspection of armaments and armed forces. The prohibition of atomic and all other major weapons of destruction, both present and future, was stated as an urgent objective. As a result of this resolution, the responsibility for formulating detailed D. proposals devolved upon the Security Council. See B. H. Williams, *The United States and Disarmament*, 1931; J. W. Wheeler Bennett, *Disarmament and Security since Locarno*, 1925-31, 1932; *Disarmament: a review of the Acts of the League of Nations and of Governments of Deliberations and the Trend of Public Opinion and Action relating to World Disarmament Conference of 1932* (Disarmament Committee, Geneva), 1932; G. Engely, *The Politics of Naval Disarmament*, 1932; H. Kirchhoff, *Heat Disarmament*, 1932; L. Blum, *Peace and Disarmament*, 1932; N. M. Sloutzki, *The World Armaments Race 1919-39* (Geneva Research Council), 1941.

Discharge, see BANKRUPT; ELEC-TRICITY; ABSCESS.

Discharge, Arch of, in architecture, an arch built in the masonry or brickwork above the lintel. Its object is to transfer the pressure from above to the points of stability on either side. It can generally be distinguished from the stone or brickwork in which it is built merely by the position of its stones. The earliest example is found in the Great Pyramid, consisting of two stones resting against each other above the lintels of the entrance. The A. of D. was used in Gk. and Rom. architecture.

Discharge (military), the release of a serving soldier from further obligations of military service under the terms of his enlistment. In the Brit. Army a soldier on enlistment undertakes to serve the Sovereign so long as his services are required within the period for which he agrees to serve. At the end of the agreed period he may claim his discharge unless a state of war exists or the reserves are called out on permanent service. If he is serving overseas, his period of service may be extended by twelve months. The Crown has the right to discharge a soldier before he has completed his legal period of service, and the grounds for discharge, e.g. medical unfitness, misconduct, inefficiency, services no longer required on reduction of establishment, are laid down in the King's Regulations. A soldier may also purchase his discharge, and the amount varies from £20 to £100 according to the conditions and length of service. He is not, however, permitted to purchase his discharge under four years if liable for service under the Military Training Act of 1939. All men discharged from the Army are given a certificate of service unless discharged for misconduct.

Disciples of Christ, see CAMPBELL, ALEXANDER.

Disciplina Arcani (Lat., 'discipline of the secret'), a term used in the seventeenth century to describe the system of reserve practised by the Christian Church during the first few centuries, by which the mysteries of the faith were concealed from unbelievers and the unbaptised. No trace of it is found till the end of the second century, and it began to die rapidly at the end of the sixth century. Strong traces of it remain in the Gk. liturgy. Baptism and the Eucharist were considered as the great Christian mysteries, and the latter was divided into a 'Liturgy of the Catechumens' and a 'Liturgy of the Faithful.' The latter included the consecration and communion, and from it the unbaptised were excluded. See works, *De Disciplina Arcani*, by Schelestrate (Rome), 1685, and Tentzel, 1692.

Discipline, see ARMY; MILITARY LAW.

Disco, is, on the W. coast of Greenland. It is 70 m. long and about 50 m. wide. Godhaven is a harbour in the S. of the is.

Discoboli, or Cyclopteridae, the family name of the acanthopterygious fishes known popularly as lump-suckers from the frequent presence of a sucking disc formed from the united ventral fins. *C. lumpus*, the cock-and-hen paddle, and *L. vulgaris*, the sea-snail, are found on Brit. coasts.

Discoidea, see ECHINODERMATA.

Discount, amount of money deducted from a certain sum when that sum is paid before it is due. There is true or theoretical D., and commercial or banker's D. The former, which is practically not used at all, is the difference between the present worth of the bill and its face value or future worth. Thus the D. on £104 due one year hence at 4 per cent per annum is £4. Tradesmen and bankers, however, adopt a different method of computation. They reckon the simple interest on the face value of the bill. Thus if a bill of £110 is due a year hence at 10 per cent., the banker deducts simple interest on £110 at the given rate, i.e. £11, instead of £10 as in true D. D. is also applied to stock if the actual purchasing value is below that of the nominal value; thus if £100 stock can be bought for £95 cash, it is at D. of 5 per cent.

Discovery, legal term denoting disclosure by a defendant in an action of certain facts, documents, or deeds, which the plaintiff obliged him on oath to discover to the court so as to make good his case. Similarly the defendant may call on the plaintiff for a 'discovery.' To obtain D. of all the documents in an opponent's possession, application must be made to a master in chambers and the applicant must first pay £5 into Court to the 'Security for Costs Account.' On the hearing of the application the master will order disclosure of 'discovery' only so far as he deems necessary either for disposing of the action or for saving costs. No party need produce any document which relates solely to his own title to property, nor any documents which, if produced, would tend to incriminate him.

Discovery Committee, Colonial Office committee which was formed in 1923 with the primary object of attempting to place the whaling industry on a scientific basis. Its other objects were to render service to navigation by conducting a hydrographic survey of the whaling areas, to inquire into the resources of whaling regions from the point of view of fisheries, and to add to scientific knowledge of the sea. For this work the royal research ship *Discovery I.* made investigations in the vicinity of the Falkland Is. between 1926 and 1927 and the research ship *William Scoresby*, and the royal research ship *Discovery II.*, a steel-built boat, made sev. voyages in Antarctic waters since that time. The chief investigations were directed to a study of the habits and haunts of whales, their rate and location of breeding, and related topics, with the view of securing data for regulating the industry. This had become an urgent matter owing to the increasing possibility of the extermination of the whale, and is of especial importance to the Falkland Island dependencies, where whaling is almost the sole industry and a lucrative one. The *Discovery I.* found that distribution was governed largely by that of the small creatures on which the whale feeds, and that therefore if large tracts are found in which these creatures are scarce, no accumulation of whales can be expected. Direct evidence as to migration of whales is sought by marking whales with numbered darts, which, when returned from whaling stations, show the course travelled. Whale-marking has been carried out by the *William Scoresby* by means of darts fired into the back of the whale.

At the end of 1930 the D. C. reported that the *Discovery II.* had carried out a complete investigation and hydrographical survey of the S. Sandwich Is., this being the first official visit made since the is. were declared Brit. Ter. by Letters Patent of July 21, 1908. Thus the ship has rounded off a chapter of Antarctic hist. associated with the historic names of Cook and Bellinghausen. In 1936 the *Discovery II.* devoted from her third voyage of research to the Antarctic in order to rescue the Amer. explorer, Lincoln Ellsworth. In 1949 the D. C. was reorganised as part of the National Institute of Oceanography.

Discus (Gk. *δίσκος*, disk), a circular plate of stone (or metal), in ant. times from 8-12 in. in diameter, weighing 4-5 lb., used for hurling from a fixed mark to the greatest possible distance as a gymnastic sport and exercise among the Gks. and Romes. Disk-throwing was included with jumping, foot-racing, spear-throwing, and wrestling in the *pentathlon* of the Olympic Games. The D. was held in the athlete's right hand, leaning against the forearm, and thrown like a quoit. Sometimes a kind of spherical quoit was used similarly, with a thong passed through a hole in it. A copy of Myron's famous 'Discobolus' is in the Brit. Museum (according to Gardiner the attitude is not strictly correct), and also in the Vatican and the Palazzo Lancellotti at Rome there are

copies. The bronze statue in Rome was presented by Mussolini in 1939 to Hitler, but in 1948 was reclaimed by the It. Commission sent to Germany to find It. masterpieces which fell into the hands of the Gers. and is now restored to Rome. As used in modern times the D. is made of birch wood, with a metal centre piece. It weighs about 4½ lb. and



MYRON'S DISCOBOLUS
A copy in the British Museum

is thrown from a circle of 7 ft. The world record throw, 180 ft. 2½ in. was made in 1946.

Discussion, term in Rom. law, denoting the exhaustion of all legal means by the creditor to enforce payment from the principal debtor before taking proceedings against the person secondarily liable, i.e. the surety. In Scots law the term is also used in 'D. of heirs', the proceedings against the heirs for debts contracted and left unpaid by the deceased.

Disease Carrier, see CARRIER (DISEASE).

Diseases, Notification of, see NOTIFICATION.

Diseases of Animals Act, see CONTAGIOUS DISEASES (ANIMALS) ACTS.

Disestablishment, the annulling of the special status, and privileges which a particular religious communion has enjoyed by favour of the State. Disendowment, a usual concomitant, is, however, separable in idea from Disestablishment. The disassociation of Church and State as a combination may be considered a Brit. religious movement; while politically it is to some extent a 'liberty and equality' concept of the Fr. Revolution. In France the Rom. Catholic Church was disestablished during the Revolution, reinstated

by Napoleon in 1801, and the union was repudiated unilaterally by the State in 1906. In Great Britain the Church of England as established in Ireland, where the people were largely Rom. Catholics, was disestablished by a Bill of 1869 which came into force in 1871. The archbishops and bishops ceased to possess the right to seats in the House of Lords, and the rights of patronage were abolished. In the case of private patronage, compensation was made, and all offices which carried personal precedence with them were retained for life. Attempts to introduce a Welsh Disestablishment Bill began in 1895. The Liberal attempt in that year failed, but in 1909 another Bill was introduced as a result of the findings of the Royal Commission appointed in 1906. The Bill was finally passed by the Commons in the early part of 1913. In the following year it passed into law to come into operation in 1915, but the outbreak of war in 1914 led to the postponement of the measure, and it was not until 1920 that the Welsh Church was disestablished. In Scotland, where the people are mainly Presbyterian, the two great div. of the Scottish Church—Estab. and Free (or United Free)—coalesced in 1929 on a unique basis, viz., complete independence of the State in all spiritual matters and internal gov., along with a definitive transference of the anct. endowments to the United Church. In 1927, a movement of a voluntary nature took place in the Eng. Church in India that might be regarded as akin to disestablishment. But although the Indian Church separated in many official particulars, it still recognises Canterbury as the mother see. European republics of recent times such as Germany, Portugal, Poland, Czechoslovakia, follow the example of the eldest republic, Switzerland, in adhering to Cavour's principle of a 'free church in a free state.' In the U.S.S.R. the Soviet gov. was at the outset hostile to organised religion, and the Orthodox Church was consequently disestablished and disendowed. See also CHURCH.

Disfranchisement, see ELECTIONS.

Disinfectants, agents used to kill disease germs with the object of preventing the spread of infectious diseases. There are three classes of substances used to counteract bacterial action, whose functions overlap to some extent; they are antiseptics (q.v.), D., and deodorants. Antiseptics act by destroying the germs or neutralising their poisons; deodorants act by disguising the smell or changing the composition of noxious gaseous products without necessarily destroying germs; but D., which are usually applied to clothing, furniture, etc., must, in order to be effective, destroy all germs associated with the disease to be combated. The process of disinfection generally commences with the destruction of organic masses, as excreta and discharges, as soon as possible, and the burning of all inexpensive or much-soiled articles of clothing, and proceeds to subject all articles suspected of contamination to the action of some chemical or physical agent of a germicidal nature. When the articles are placed in

a sealed room, an effective disinfecting agent is formalin, which has a particularly penetrative power, but has little action on colouring matter or metals other than iron. Sulphur dioxide was formerly much used, but the penetrative power is less than that of formalin, and there is some doubt as to the dry gas being an effective germicide, though many vermin are readily destroyed by it. The application of considerable heat is the most effectual method of disinfection known. When applied in the form of hot air there is danger of scorching articles of clothing; but steam, at a temp. of about 120° C. and a pressure of 5 lb., has no harmful effects on colours and fabrics. Public disinfecting stations have usually two chambers; the clothing, etc., is placed in a cage mounted on wheels so that it can be run from the steam chamber to the drying chamber, where the articles are handled by a different staff and conveyed in different wagons from those connected with the collection of contaminated articles. Liquid D. are used for cleansing articles in constant use in sick-rooms, for treating drains and sinks, etc. The manganates and permanganates of sodium and potassium, chloride of lime, carbolic acid, corrosive sublimate, etc., are used for this purpose. D. lose their power when much diluted, and the vapour of carbolic acid, though its odour gives a sense of security, has no particular germicidal effects. In recent years the range of disinfectants has been widely extended by chemical research, and some of the new varieties, such as hexahydroresorcinol, are 300-400 times as effective as carbolic acid.

Disinfecting Stations.—By various Acts of Parliament, notably the Public Health Act, 1875, it is incumbent upon sanitary authorities to cleanse and disinfect houses and their contents if they are likely to cause or spread disease. Bedding, clothes, and similar articles which are extremely likely to do this are removed to D. S. and disinfected at the public expense. If necessary they are totally destroyed, in which case compensation is given. The usual agent in D. S. is steam. Local authorities have power to disinfect persons also who through filth, disease, or vermin are a danger and a nuisance to the public.

Disjunction, in logic, the relation of the sev. terms of a disjunctive proposition, which is the statement of alternative possibilities. It is a matter of dispute among logicians whether the disjunctive form necessitates the mutual exclusiveness of the alternate predicates. A disjunctive judgment is one of the form 'A is either B or C' when either the statement 'A is B' or 'A is C' must be true. See *Well-ton's Logic*, II. l. 209.

Dislocation, or Luxation (loosening), in surgery, the displacement of one bone from another with which it is articulated (commonly called 'putting out of joint'). Usually the result of an accident, but may be caused by disease or be congenital (occurring before birth). Displacements may be partial or complete. They are classified as 'simple' when the skin is unbroken, 'compound' when there is a

wound. A complicated D. is a displacement of a bone, accompanied by severe local lesion of the soft parts or fracture of the bone. The process of righting a D. is called 'reduction.' Reduction of recent luxations is comparatively easy to doctors, but in old and long-neglected cases it involves an operation which may be followed by bad consequences for the patient. Since the introduction of anaesthetics treatment is much easier. Manipulation has, since 1870, largely replaced the method of traction or extension. Ds. are rare in infancy or old age. They usually take four to six weeks to heal. The shoulder is the joint most frequently dislocated, or the hip in the lower extremity.

Dismal Swamp, large marsh about 500 sq. m. in extent in Virginia and N. Carolina, U.S.A. There are many trees growing there, mostly cypress and cedar. It is being gradually reclaimed, canals having been cut through it, the longest of which connects Chesapeake Bay and Albemarle Sound.

Disna, or Dissna, tn. of White Russia, situated at the junction of the Disna with the Dwina. Pop. 8000.

Disney, Walter Elias (b. 1901), film producer, born in Chicago. Worked on a farm and, later, in an ambulance corps in France during the First World War. He studied drawing in Chicago and in 1923, went to California. His first great film success was *Mickey Mouse*, which he introduced in a number of short film cartoons together with Minnie, Pluto the dog, Donald Duck, and other animal characters. His first full length cartoon was *Snow White and the Seven Dwarfs* (1937), based on the well-known fairy tale by the brothers Grimm. His next was Colliodi's *Pinochio*, an Ital. classic, and other full length films followed, notably *Fantasia* (1940) *Saludos Amigos* (1941), and *Song of the South* (1947) —D.'s first production to include live performers.

Dison, tn. of Belgium in the prov. of Liège, with woollen manfs. Pop. 11,000.

Disorderly House, see under **NUISANCE**.

Dispart, in gunnery, the difference between the radius of the base ring at the breech of the gun and the ring at the swell of the muzzle. An allowance for D. is necessary in determining the beginning of the gradations on the tangent scale. The line which is drawn from the circumference of the base to that of the muzzle is known as the line of metal; the angle subtended by the D. at the base of the gun is equal to that which, in a vertical plane passing through the axis of the bore, would be contained between the latter and the line of metal. A special D. sight, raised in the centre of the gun between the trunnions, is used when the line of metal gives a large D.

Dispensation, in a wide sense, may be taken to mean the licence of a sovereign power exempting a particular person from any obligation imposed by the law. In Great Britain the Bill of Rights abrogated the assumption of this power by the Crown, and though it survives in the shape of the prerogative of pardon and, more indirectly, in acts of indemnity, it is

exercised in a strictly constitutional manner. In a narrower technical sense D. means the granting of a licence or the licence itself to do what is forbidden by a canon of the Church, or conversely, to omit something which is commanded. In the Rom. Catholic Church Ds. may be granted by the legislating authority or any superior authority: thus the pope, his legates and those deputed by him may dispense from any merely ecclesiastical laws, but not from the divine or natural law, or in such a way as to injure the rights of third persons. A Rom. Catholic bishop may dispense from his own diocesan laws, or, under a faculty from the pope, from universal laws of the Church. In England the archbishop of Canterbury formerly had a considerable dispensing power, but it is now exercised chiefly in the shape of special licences for marriages. Bishops can still grant Ds. to clergymen from the law against holding pluralities and residence away from their parishes.

Dispenser, person skilled in preparing medicines from prescriptions. To practise as a D. a person must first have passed examinations held under the auspices of the Pharmaceutical Society and he must also be registered under the Pharmacy Acts. The practice of dispensing was not treated as a distinct profession from that of the doctor before the seventeenth century. A modern D. must possess wide knowledge and a considerable degree of skill.

Dispersion, in optics, the decomposition of light into rays of different refrangibility. The light we receive from the sun is commonly called white light, but it can be shown that white light consists of various coloured rays. If a pencil of the sun's rays is allowed to pass through an aperture in the shutter of a dark chamber, it will form an image of the sun on a screen placed to receive it. If, however, a prism of flint glass be interposed horizontally, the ray appears to be spread out and is received on the screen as a series of colours at some distance from the position of the previous image. The explanation is that the light is refracted or bent on entering the glass and again on leaving it, and as some of the components of white light are more easily refrangible than others, they take up different positions on the screen. It is usual to distinguish seven colours: violet, indigo, blue, green, yellow, orange, and red, of which violet is the most refrangible and red the least. When prisms of different materials are used, spectra are formed of different lengths, but having the same colours and usually in the same order. When artificial light is thus dispersed through a prism, all the colours of the spectrum may not be seen; but the colours are found in the solar spectrum, and in the same order. If the artificial light is yellow, for instance, the dominant colour in the spectrum will be yellow; and such colours as blue, indigo, and violet may be very faint or missing altogether. If the light from the dispersing prism is caught on a concave mirror, so that the rays can be brought to a focus again, the combined rays will produce a

light similar to that of the source, thus showing that the colours are simply components of the original light. The composition of white light can also be demonstrated by colouring a disk in sectors with the same colours in the same proportions as they appear in the solar spectrum, and then rotating the disk rapidly so that the retina retains the sensation of all the colours at the same time; the result is something approaching to white light.

Anomalous dispersion.—Some substances produce spectra in which the colours are seen in unusual positions. If a prism be made enclosing one of the aniline dyes it is found that the extent of refraction is greater for some of the colours of longer wave-length than for colours of shorter wave-length, so that the order of the colours is different from that in an ordinary spectrum. This shows that refrangibility does not necessarily depend upon wave-length, at any rate for substances with special absorptive properties.

Displaced Persons. People who were uprooted from their homes during the Second World War, either as forced labourers or prisoners of war, by the Nazis, and those who were in exile from Soviet-occupied ter. By the end of 1945 the Allied Armies and the United Nations Relief and Rehabilitation Administration (UNRRA) (q.v.) had between them returned over 5,000,000 D. Ps. to their homes. But there still remained at that time over a million of these unfortunate persons, chiefly Poles, Ukrainians, Yugoslavs and refugees from the Baltic States, who were unwilling or afraid to return to their home countries, owing to the Communist control of them. UNRRA maintained these refugees for over a year but by the autumn of 1947 most of them were still in camps in Germany, Austria and Italy. In Dec. 1946 the General Assembly of the United Nations voted by thirty-five to five to establish an International Refugee Organisation (I.R.O.) The I.R.O. was to come into being when fifteen nations whose contributions represented 75 per cent of the proposed budget of over £10,000,000 had signed the constitution. This condition was fulfilled in May 1947. The I.R.O., created in July 1947, took over the work of relief from UNRRA after the latter had been dissolved. The major part of its funds had to be devoted to keeping the refugees alive on a subsistence food standard and less than 18 per cent of their budget could be allocated to helping D. Ps. to begin new lives. Of the 205,000 D. Ps. resettled in seventy-three countries in 1948 the United Kingdom took more than a third, the rest being taken by Canada, Belgium and the U.S.A.—in that order. Subsequently the U.S. decided to accept 200,000, Congress having asked for thousands of skilled workers for Amer. industry, plus a large proportion of experienced farmers. The Amer. Bill excludes Jews and others who were not D. Ps. as at Dec. 22, 1945 or, in other words, D. P. status depends on having been taken into a D. P. camp by that

date. Of the 25,000 Canada took during 1947, the schedule asked for 2300 farm workers and sugar beet workers, 2300 garment workers, 3000 domestic servants, 3000 construction and railway workers and many thousand miners. Belgium, faced with a labour shortage in the mines, admitted 18,000 D. P. miners. The U.K., filled similar shortages with the 69,800 refugees it absorbed. Among the 598,445 people who still remained in the camps in Jan. 1949 over half were classified as employable, one-third were skilled workers, one-fourth farmers and one-eighth constituted the professional group. Among the women there were railroad conductors, blacksmiths and boiler-makers, housekeepers and midwives. The bulk of 11 Ps. remaining at Jan. 1949 were Poles (146,000), Balts (134,000) and Ukrainians (91,000). The rest represented fifty-seven different nationalities. The large number of Jews was rapidly reduced during 1949 by emigration to Israel. Encouraged by America's change of heart, many other countries increased their quotas. Australia began with a total of 1200 a year but later agreed to take 200,000 over a period of years, spending £1,000,000 on housing to permit possible further expansion. Canada announced that it would admit a total of 100,000 immigrants; Brazil raised its total to 15,000; France took only 16,000 in 1948 but allowed the 3000 refugees who crossed its frontier every month to stay. The largest contributors to the I.R.O. budget of 1948 of 160 million dollars were the U.S.A. which gave 71 million dollars and Great Britain with 23 million. Despite difficulties, such as the embargo on intellectuals and professional persons and the need for training and learning a new language, I.R.O. expected to complete its task by the middle of 1950—except for a 'hard core' of 148,000 D. Ps. This number includes not only the sick and old but the healthy members of their families who refused to leave them.

Displacement, see TONNAGE.

Displayed, see under HERALDRY.

Disposition, in Scots law, is the name given to any writing by which the proprietor of a feu (fee or heritable estate in land), or of a personal right in any property heritable or movable, or of incorporeal heritable property (such as a reversionary right), makes over his property to another. Strictly, the transference of a personal right is specifically known as assignment, in contradistinction to D. Many changes have from time to time been made in the essentials of a form of D. Since the Conveyancing Act, 1874, the customary scheduled form, after the formal parts, assigns the rents and binds the person disposing to relieve the disponee of all feu-duties, casualties (q.v.), and public burdens, and to consent to the registration of the D. The creation of a new feu as opposed to transmission of a feu is by charter and not by D. The usual form of family settlements of heritable property in Scotland is by D.

Disputation, exercise of argumentative skill very common in the old univ., a

question being raised which some would attack and others defend. Among famous Ds. may be mentioned those between Knox and Kennedy (1562) and Land and Fisher (1623).

Disraeli, Benjamin, see BEACONSFIELD, EARL OF.

D'Israeli, Isaac (1766–1848), Eng. man of letters, at an early age determined, in spite of parental opposition, to become an author, and in the end, after a severe struggle, he had his way. His first work, a *Defence of Poetry*, in verse, was pub. in 1790, and in the following year he issued the well-known *Curiosities of Literature*. This was so successful that further vols. were issued by him at different periods of his life, in 1793–1817, and 1823. *Calamities of Authors* appeared in 1812, and *Quarrels of Authors, or Some Memoirs for our Literary History* in 1814. Two years later he wrote an *Inquiry into the Literary and Political Character of James I.*, and between 1828 and 1831 he pub. his *Commentaries on the Life and Reign of Charles the First, King of England*, at once his most ambitious and his best work. In 1817, in consequence of a quarrel with the synagogue, D'I. withdrew from the congregation, and in that year he caused his children to be baptised. Many years later, in his *Genius of Judaism* (1833), he wrote enthusiastically of the Jews in early days, but claimed for himself to have outgrown the superstitious practices still adhered to by his contemporaries. See Benjamin Disraeli's preface to *The Works of Isaac D'Israeli* (1858–9), vol. I.

Diss, tn. of Norfolk, England, situated on the Waveney, 20 m. S.W. of Norwich. It was formerly noted for the manuf. of worsted and hemp cloth. There are malting works and breweries, also manuf. of brushes, etc. John Skelton, the author, was a native of the tn. Pop. 3500.

Dissection (cutting apart) is used to represent those processes of separation of the parts of a body which are necessary to show their formation and their relationship to each other. It is, therefore, a branch of Anatomy (q.v.), and so one of the divisions of the science of Biology (q.v.). Although of great importance in all its branches, it is in connection with human anatomy that it has its greatest value. Democritus and, later, Hippocrates, are supposed to have had some knowledge of it, but Aristotle was the real founder of the art of D., although his work was almost certainly confined to the D. of animals. Erasistratus (250 B.C.) was probably the first to dissect human bodies, performing his work on the bodies of criminals. The progress, however, was slow, owing to the overwhelming prejudice which existed and still exists against the practice of dissecting human bodies. The consequent difficulty in obtaining subjects caused anatomists to have to rely, in the main, upon D. of lower animals, but in 1832 the Anatomy Act was passed, which provides that the bodies of unclaimed dead shall be handed over to the medical schools. The practice usually adopted is forcibly to inject a hot mixture of wax or paraffin and vermilion into one

of the large blood vessels. Sometimes it is necessary to inject the same liquids into the veins and lymphatics. The body is then kept in preservatives until such times as it is required. In its deeper branches it becomes a most intricate subject, requiring special care and preparation. Under the microscope, by D. and differential staining, etc., it is possible to study the cellular structure of organs. Pathology depends to a great extent upon the study of Ds. of diseased subjects, while surgery and embryology are also deeply indebted to D. See ANATOMY, VIVISECTION.

Disseisin, see SEISIN.

Dissenters, see NONCONFORMITY.

Dissociation, in chemistry, is the term applied to the reversible decomposition of a substance by heat. Thus nitrogen dioxide has the formula N_2O_4 at ordinary temps. but on heating it splits up into molecules of NO_2 ; these recombine on cooling, forming N_2O_4 again: $N_2O_4 \rightleftharpoons 2NO_2$. To indicate the reversibility of the change the reversed arrows \rightleftharpoons are used instead of the sign of equality =. At high temps., water-vapour dissociates into hydrogen and oxygen: $2H_2O = 2H_2 + O_2$. Similarly ammonium chloride vapour is found not to consist of NH_4Cl molecules but of a mixture of ammonia, NH_3 , and hydrochloric acid, HCl , dissociation having taken place: $NH_4Cl \rightleftharpoons N.H_3 + HCl$. If dissociation results in the formation of an increased number of molecules, increase of pressure hinders D. If, however, there is no increase in the number of molecules, pressure is without effect, as, for example, in the action $2HI \rightleftharpoons H_2 + I_2$, the dissociation of hydrogen iodide.

Electrolytic D. refers to the separation from one another of the ions of electrolytes when dissolved in water or some other solvent. Thus when solid sodium chloride, consisting of an assemblage of positively charged sodium ions and negatively charged chlorine ions, is dissolved in water, the ions separate from one another and become mobile.

Dissolution (of Parliament), see PARLIAMENT; (of partnership), see PARTNERSHIP.

Dissonance, see under MUSIC.

Distaff, stick or staff, to which material for spinning, as cotton, flax, etc., was fixed, in the method of spinning by hand. The D. was held under the left arm, and the fibres, as they were drawn from it, were spirally twisted with the right hand. During the process of spinning, the thread was wound round a revolving reel.

Distemper (fr. *détrempe*, lt. *tempera*), originally any fluid medium for mixing with pigments, later restricted to glutinous substances, such as size, white or yolk of egg, gum-water, fig-tree sap, honey, etc. The pigments were ground up with these and water and applied to a smooth surface of dry plaster (not damp as in the case of frescoes), usually spread on wood or canvas. D. painting was known in Egypt, Babylon, and Nineveh very early, and used by the Gks. for interior decoration. Till replaced by the oils of the Van Eycks, it was the ordinary method of

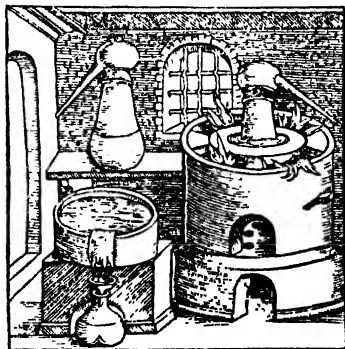
painting in the highest depths of art. In Italy its use continued till 1500 and early Flemish artists constantly employed it. When treated with oil-varnish such paintings are hard to distinguish from oils. They are precise in form and outline, and the rapid drying of the colours prevents blending of tints. It is still used for scene-painting and in preparing wallpaper.

Distemper, disease which affects young dogs and cats, generally between the third and sixth months of their age. It consists of an infectious microbic inflammation of the mucous membranes of the respiratory passages. Treatment consists in relieving the stomach and bowels by aperients, and in keeping the animal warm and dry, on a light diet of bread and milk. See also under DOG.

Disthene Rock, see ECLLOGITE.

Distich, see under METRE.

Distillation, process which consists of converting a solid or liquid substance into the gaseous form and afterwards condensing the vapours to a liquid form, in order



DISTILLATION

From a sixteenth century book

to purify the substance or separate its components. The process was known to the ancients, who devised ingenious forms of apparatus. The essential parts of a distilling apparatus are a retort or still, in which the substance to be distilled is heated to vaporisation, a condenser, in which the vapours are cooled to a liquid form, and a receiver, in which the condensed liquid, or 'distillate,' is collected. The temp. at which a substance boils depends upon the pressure exerted upon it, and therefore it is necessary, in the case of liquids which decompose at a temp. below their boiling-point, to reduce the pressure so that they may boil at a suitable temp. The simplest form of distilling apparatus consists of a glass retort communicating with a receiving flask by a straight tube gently sloping downwards and enclosed by a wider tube through which cold water is run, entering at the lowest point and

leaving at the highest. To present a larger surface to the cooling action of the water, the condenser is often flattened or twisted into a spiral form, or 'worm.' A long, wide glass tube or air condenser may be used for liquids with high boiling points.

Another method sometimes employed is that of *Steam D.* Thus aniline, a liquid which boils at 184° C. under atmospheric pressure, if mixed with water and heated, distills off together with water, when steam is passed through the mixture, and by condensing the mixed vapours, the two immiscible constituents aniline and water are obtained. This method is particularly useful for the purification of tarry and dirty preparations in which one of the components happens to be volatile in steam.

Fractional distillation is a process which aims at separating components of the original liquid which have different boiling-points. This is achieved by using a dephlegmating column (*see DEPHLEG-MATOR*). In the distillation of coal tar, the dehydrated material is heated in a wrought-iron cylinder fitted with a thermometer, and the vapours are condensed in cast-iron cooling-pipes laid so as to have a continuous fall to the receivers. As the process continues, the temp. rises and the less volatile substances are driven off until only the pitch remains as residue. The distillate is collected in fractions at different stages of the process, and such substances as 'first runnings,' 'light oil,' 'middle oil,' and 'heavy oil' are differentiated. These are afterwards separately fractionated. The distillation of alcohol from a malt wort is an important stage in the preparation of whisky (*see COFFEY'S STILL*). The distillation of seawater to procure water for drinking purposes is of importance in considering the equipment of ships, and all big liners carry apparatus for this purpose.

In large-scale operations two types of D. are employed, the continuous and the discontinuous. In the continuous method the liquid to be distilled is fed into the still at a constant rate as D. proceeds, and conditions are so arranged that the cooling of the vapours and the heating of the liquid in the still are carried out at as steady a rate as possible. By the continuous method, large amounts of material can be dealt with. In the discontinuous method, which is more suitable for small-scale operations, the distillation of a quantity of liquid is allowed to proceed until it is at an end. The process may then be repeated with fresh supplies of material. The method has the advantage that plant construction is simple, and costs are low. *See J. Keilly, Distillation, 1936.*

Distinguished Conduct Medal (D.C.M.), awarded to warrant officers, non-commissioned officers and men of the Brit. regular army.

Distinguished Flying Cross (D.F.C.), instituted in 1918 as a decoration for officers and warrant officers in the Royal Air Force for acts of gallantry when flying in active operations against the enemy. The Air Force Cross (A.F.C.), 1918, was

instituted for bestowal to airmen as in the case of the D.F.C., but for acts of courage or devotion to duty when flying, although not in active operations against the enemy. The Distinguished Flying Medal (D.F.M.), 1918, and the Air Force Medal (A.F.M.) were designed for warrant officers and non-commissioned officers for equivalent services as for the D.F.C. and A.F.C. respectively. The bestowal of the above four decorations was extended in 1941 to members of the Fleet Air Arm.

Distinguished Service Cross (D.S.C.), was instituted in 1914 in substitution for the Conspicuous Service Cross (1901) for bestowal on all officers of the Brit. navy below the rank of lieutenant-commander and on warrant officers.

Distinguished Service Medal (D.S.M.), was instituted in 1914 for chief petty officers, men and boys of all branches of the Royal Navy and for non-commissioned officers and men of the Royal Marines, and for all other personnel holding corresponding positions in the service afloat. In 1942 its bestowal was extended to men of the Mercantile Marine.

Distinguished Service Order (D.S.O.), this order was instituted by royal warrant on Sept. 6, 1886. It is an order of military merit and was founded in order to recognise special services of officers in the Brit. navy and army and later was extended to officers of the air force and mercantile marine. It has only one class, and holders of this order carry after their names the letters D.S.O. Its numbers are unlimited and the companions of the order rank next in precedence after the companions of the fourth class of the Royal Victorian Order. The decoration itself consists of a white and gold cross with a red enamelled centre which bears the imperial crown surrounded by a laurel wreath. The ribbon is red, with blued edges. *See also DECORATIONS.*

Distomum, *see* LIVER-FLUKE.

Distraint, *see* DISTRESS.

Distress, taking of goods or cattle out of the possession of a wrongdoer into the custody of the party injured, for the purpose of procuring satisfaction for the wrong committed. The most usual injury for which a D. may be taken is that of non-payment of rent. But the remedy may also be resorted to for the payment of taxes, rates, and duties, as well as to obtain compensation for damage done by cattle wandering over one's grounds. As between landlord and the tenant a D. cannot lawfully be made after the tenant tenders to his landlord the full amount of the arrears. Various statutes and judicial decisions have resulted in the exemption of a large number of things from D. Some of these are *absolutely* privileged, e.g. fixtures; things in actual use; wearing apparel and bedding of the tenant, of his family, and the tools of his trade to the value of £5; machines used in cotton, woollen and silk manufs.; goods delivered to the tenant in the way of his trade; and, in the case of tenants under the Agricultural Holdings Act, hired machinery and breeding stock. Some things, like the tools of a man's trade be-

yond £5 in value, are privileged only if there be other sufficient distrainable goods on the premises. By an Act passed in 1908 the goods of an under-tenant who pays a rent equal to the full annual value of the premises or part of the premises occupied by him are exempt from D. for the rent due from his lessor to the superior landlord; and by the same Act the goods of a lodger and those of any other person not being a tenant of the premises, or having any beneficial interest in any tenancy of the premises or any part thereof, are also exempt from D. in respect of the rent due from the tenant to his landlord. Goods comprised in a hire-purchase agreement (except in the case of machinery on an agricultural holding) or in a bill of sale or belonging to the husband or wife of a tenant, are not exempt from D. No D. can be taken until the day following the day on which rent is made payable, and it must be taken between sunrise and sunset. No previous demand for the arrears is necessary in the absence of express agreement to that effect. Under the National Insurance Act, 1936, D. must be postponed in the case of a tenant who is an insured person where a doctor certifies that a D. would endanger his life. D. is usually levied through a certificated bailiff armed with a D. warrant. Goods distrained may be sold at the end of five days, and after notice to the tenant. By the Limitation Act, 1939, goods may not be distrained in recovery of rent which is in arrear more than six years, unless it has been during that time acknowledged by the tenant in writing to the landlord or his agent. See F. A. Enever, *History of the Law of Distress*, 1931; J. P. Eddy, *The Law of Distress*, new ed., 1939.

Distribution, see ECONOMICS.

Distribution, Statutes of. Acts which settled the distribution of an intestate's real and personal estate. They are now all repealed by the Administration of Estates Act, 1925, which, *inter alia*, changed the rules of intestate succession which had become familiar from their long estab. References to any S. of D. in a deed of gift or will coming into operation after the end of 1925 will be construed as references to Part IV. of the new Act, and references in such an instrument or will to statutory next-of-kin will be construed—unless the context otherwise requires—as referring to the persons who would take beneficially under the provisions of the new Act. The old rules of intestate succession are of merely historical interest to-day, though reference to them might well be necessary in tracing title to real property. For present day rules of intestate succession, see SUCCESSION, INTESTATE.

Distribution of Animals and Plants, see GEOGRAPHICAL DISTRIBUTION.

Distribution of Electricity, see ELECTRICITY SUPPLY.

Distribution of Terms. In formal logic, by 'distribution' of a term is simply meant 'taking it universally,' or referring to all parts of it. In the 'opposition of proposition,' the 'universal negative' distributes its predicate, whereas the

universal affirmative and particular affirmative do not. These distinctions are important, because the validity of any argument or syllogism will usually depend on the sufficient distribution of the terms occurring in it. In 'conversion of propositions,' i.e. in the transposition of subject and predicate, no term must be distributed in the Converse unless it was distributed in the Convertend, e.g. the converse of 'all metals are elements' is not 'all elements are metals,' but 'some elements are metals'; but that of 'no metals are compounds,' is 'no compounds are metals,' because, in this latter example, all the terms are distributed.

Ditchling Beacon, point on the S. Downs, 6 m. N. of Brighton, in Sussex, England. It is 813 ft. high and crowned by ant. earthworks. It was purchased by the Brighton Bor. Council in 1918. Nearby is Ditchling village.

Dithmarschen, or Dittmarsh, North and South, region in Germany, W. of Holstein. It is low and marshy, giving rise to malarial fever, but has dykes to prevent inroads of the sea. Incorporated in Holstein, 1559, incorporated with the Danish Crown, 1773; annexed to Prussia, 1866, as part of the prov. of Schleswig-Holstein, and in 1946 incorporated in the *Land* of Schleswig-Holstein as part of the British zone during the occupation of Germany after the Second World War. Pop. 100,000.

Dithyrambus (δῑθύραμβος), originally a surname of Dionysus (Bacchus) of uncertain etymology, later applied to a hymn sung in his honour to the accompaniment of flute or lyre, together with a dance around the altar. The subject was usually the birth and life of Dionysus, later other themes were added. The artistic choral or antistrophic form was supposed to have been developed out of the earlier passionate hymns for one or more singers by Arion at Corinth (or possibly Naxos, c. 620 B.C.). Out of the mournful dithyrambs rose the grand ant. Gk. tragedy. At Athens there were yearly contests between dithyrambic choruses (usually fifty men, dressed as satyrs, representing Dionysus' companions) at the Greater and Lesser Dionysia, Panathenaea, and other great festivals. The prize was an ox, later a tripod. Though they flourished till after Aristotle's time, but few fragments remain. Pindar was said to have been trained by Lasus of Hermione. This lofty and vehement style of lyric poetry degenerated later into bombastic extravagance, and 'dithyramb' was applied somewhat contemptuously to any lyric of unrestrained frenzy and excitement, such as might be written during intoxication. The nearest approaches to dithyrambic verse in Eng. are Leigh Hunt's trans. of Rudl's *Baccho in Toscana*, c. 17 (1825); Dryden's *Alexander's Feast* (1698); still better examples being the *Bacchic Songs of the Swedish Bellman* (1791). See A. W. Pickard-Cambridge, *Dithyramb, Tragedy, and Comedy*, 1927.

Dittany, name applied to plants of various orders, the word being derived from a Cretan mountain on which they flourish.

Both the D. of Crete, *Origanum dictamnus*, and the D. of the United States, *Cunila Mariana*, are members of the order Labiate, but the bastard common D., *Dictamnus albus*, also known as *fraxinella*, belongs to the Rutaceae.

Dittersdorf, Carl Ditters von (1739-99), Austrian composer and violinist, b. at Vienna, studied under Ziegler and Bonno, and soon became one of the leading violinists of his time. In 1761-4 he was in the Court orchestra at Vienna. Contemporary with and of the same school as Mozart, his works were overshadowed by those of the latter composer. Wrote a score of operettas, mostly humorous, the best known of which are *Doctor und Apotheker* (1756), *Liebe im Narrenhaus* and *Hicronymus Knicker* (1757), and the oratorios, *Isaak* (1767) and *Esther* (1773). A number of his instrumental works have been repub. Also pub. *Die Grenzen d. Komisch u. Heroisch. in d. Musik*. His *Selbstbiographie*, dictated to his son before his death, was pub. in 1801. See C. Krebs, *Dittersdorffiana*, 1900; L. Riedinger, *Karl von Ditters als Opernkomp. 1814*.

Ditton, Humphrey (1675-1715), Eng. mathematician. He studied theology, and was a dissenting minister at Tonbridge for some years. He owed his election as mathematical master at Christ's Hospital to the influence of Sir Isaac Newton. William Whiston and he invented a method for discovering long, which was approved by Sir Isaac Newton.

Diu, Portuguese is. at Gujerat, India. It is 7 m. long, and resembles part of the coast to which it runs parallel. The tn. of D., situated at the E. end of the is. is surrounded by a wall, and is mostly in ruins. Formerly it was of considerable commercial importance with a slave mkt. In 1535 it came into the possession of the Portuguese. It was occupied by the Arabs of Muscat in 1670 and retaken by the Portuguese in 1717, and is now of importance only for its five salt-works. Pop. 15,800.

Ditzen, Rudolf, see FALLADA, HANS.

Diuretics, medicinal agents which stimulate an increased flow of urine. This is often desirable when from any cause the supply of urine is diminished, or when it is required to promote increased excretion to carry off morbid products circulating in the blood, or, as in dropsy, to aid in the removal of watery collections. Ordinary water, taken in large quantities, is an effective D. Digitalis and squill act by stimulating the heart movements and causing an increased blood pressure. Alcohol, turpentine, and cantharides stimulate the kidneys, but their irritating action renders their use inadvisable. Caffeine acts both as a cardiac stimulant and as a renal stimulant, and is a particularly effective diuretic.

Diwan (Persian, *deran*), word common to many Oriental languages, meaning master-roll, counting-house, register of payments (cf. Fr. *douane*, custom-house), council, court of justice, *sofa*. In the sense of a 'collection of poems' Goethe used it in his 'West-östlicher Diwan,' and the Persians spoke of the D. of Saadi or

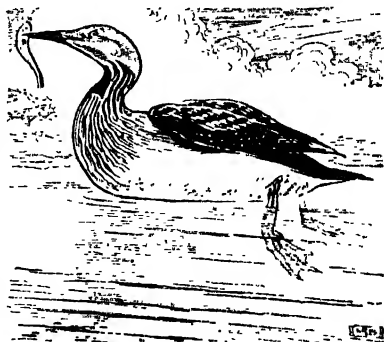
Hafiz. The Turkish D. was the great council or supreme judicial tribunal of the empire ('*Divani humayun*') at Constantinople. The word dates from the caliphate of Omar (A.D. 634-44). In the sense of low, cushioned seats or sofas, ranged against the walls as in Eastern reception-rooms, for which it was also commonly used, it became known in Europe in the eighteenth century. Ds. were especially fashionable about 1820-50. The D. being without side, head, or tail boards, is now widely used as a couch or bed.

Divanleh, see DIWANIEH.

Diver, see DIVING.

Divergency, **Divergent** (in mathematics), see under SERIES.

Divers, or **Colymbidae**, the name of a family of water-birds which forms with *Podicipedidae*, the grebes, the tribe *Colymbiformes*. The species are all marine,



DIVER

with short tail-feathers and webbed feet. During the breeding period they live inland and the female lays two eggs which hatch into down-covered chicks. The Brit. species are the inconspicuous *C. septentrionalis*, or red-throated D.; *C. glacialis*, the great northern D.; *C. Adamsi*, the white-billed northern D.; and *C. arcticus*, the black-throated D. The birds inhabit the temperate regions of both N. hemispheres.

Dives, name of the rich man spoken of by Christ in His parable of the rich man and Lazarus in Luke xvi.

Dives-sur-Mer, watering-place of N.W. France, in the dept. of Calvados, and situated on the Dives, 15 m. N.E. of Caen and 8 m. S.W. of Deauville. It has metal indus., but was formerly an important seaport. William the Conqueror sailed from D. in 1066 for England. Pop. 5400.

Divide (geography), see WATERSHED.

Dividend (Lat. *dividendus*), literally a sum or quantity to be divided, especially applied in commerce to the annual or half-yearly interest payable on public funds or the National Debt, and on some other loans and debentures. The profits

of joint-stock companies (banking, railway companies, and others), paid periodically to each stockholder or shareholder, are also called 'dividends.' They are usually fixed at a certain rate per cent. In the case of 'cumulative dividends' it is agreed that, if at any time they are not paid in full, the difference shall be added to the following payment. D. is also the term applied to the sum of money apportioned to creditors from the realised assets of a bankrupt's estate. It may mean either the whole sum divided or the proportion or share falling to each creditor. These Ds. are commonly reckoned at so much per pound of the claims (as 8s. in the £1).

Dividing Range, see under AUSTRALIA.

Divi-divi, or *Casalpinia coriaria*, species of Leguminosae which occurs in S. America and the W. Indies. The pods are of economic importance, being used in tanning.

Divination (Lat. *divinatio*), the art of obtaining the knowledge of future things by some supernatural means, or by some system outside the ordinary bounds of reason. D. was generally regarded in the classical world as the revelation of the gods, though it was sometimes argued that divine revelation was not essential. Roughly, methods of D. may be divided into two classes, those in which some particular objects are made use of, as in the case of astrology and those in which the divine will is revealed directly to the human spirit, as in the case of dreams. Perhaps astrology would rank first among these methods. It pretends to tell, by the relations of the stars, the futures of states and individuals. It reached its highest stage about the seventeenth century. The system of D. by dreams (*oneiromancy*) is extremely anct., and has been received by Christian, Pagan, and Jew. The dreams may be interpreted either literally or by contraries. The casting of lots (*sortilège*) was common in anct. times, and has survived now merely as an appeal to blind chance. A somewhat similar method is that of *bibliomancy*, by which a book is opened at hazard and some one or two lines selected at random. These lines are supposed capable of interpretation so as to give advice for the future. Of this kind were the *sortes virgilianae*. In the case of *harpuspication*, or the examination of entrails, the proceedings are far more elaborate, as the institution of the Rom. College of Augurs shows. The time and all the incidental circumstances must be propitious before a good result can be obtained. In the case of D. by *augury* and *omens* this is not so necessary. *Pyromancy* is a method of D. from the behaviour of fire. Somewhat similar is D. by examination of tea leaves. *Crystallomancy* makes use of concentration of the mind induced by crystal gazing. *Cheiro-mancy* or *palmistry* pretends to tell the future of an individual by the lines of his hand.

Divine Right, the belief that kings are the direct representatives of the Deity, and as such are to receive the obedience due to God's viceroy on earth. They themselves

owe obedience to Him alone, and are relieved from all responsibilities towards their subjects. James I. of England insisted on D. R. as a principle, which was carried to extremes by the supporters of his son. Charles I.'s claim to this D. R. was the direct cause of the royalist and parliamentary struggles of the seventeenth century. The idea did not really lose its hold until after the suppression of the rebellion of 1745 in England, and till the great Revolution in France. The doctrine was supported by Sir Robert Filmer in England and in a modified degree by Bossuet in *Politique tirée de l'écriture Sainte*. It was opposed by John Locke in his *Two Treatises of Government* (1690), and by J. J. Rousseau, *Contrat Social* (1762). See J. N. Figgis, *Theory of the Divine Right of Kings*, 1896, and *The Divine Right of Kings*, 1914; and J. MacKinnon, *The Growth and Decline of the French Monarchy*, 1902; A. M. Hocart, *Kingship*, 1927.

Diving. In Indian seas the art of D. has been practised from very early times. Before the introduction of mechanical aids, D. was the only means of obtaining the pearls, sponges, and corals to be found in such oceans, and there is no doubt that great skill was shown by the natives. When all allowances are made, however, slightly over three min. is the limit of time during which a naked diver can remain under water. Persons who habitually engage in D. suffer severely from the constant strain on the lungs. The attention of inventors was very early turned to the discovery of some means by which the diver could remain longer under water. The earliest invention was the D. bell, of which the principle is very simple. If an inverted jar be sunk in a vessel of water, the air contained therein excludes the water from the interior. Since air is compressible the water gradually rises up the sides of the jar as the depth of water increases; so that at a depth of 33 ft. the air would be compressed into half its original bulk. The D. bells of the first makers were strong, heavy vessels, generally formed of wood girded with iron hoops. The great drawback to these early forms of D. bells was that they had to be raised to the surface at frequent intervals for fresh supplies of air, and consequently their sphere of utility was very limited. It was not until 1778 that Smeaton devised a type of bell which contained all the elements of the present appliances. In repairing the shoeing of Hexham Bridge, Smeaton contrived a bell to which he attached a force-pump; this was the first time that the force-pump had been used for such a purpose. The modern D. bell is usually of a rectangular shape, and weighs about five tons. The air-supply pipe, connected with a force-pump, is screwed on to the top, which is supplied with windows of thick glass; the bell is fitted with seats inside, and is worked in water up to a depth of 35 ft. The invention of the D. dress was very gradual, and many persons contributed something to it, but Siebe did more than any other to improve it. In

1829 he invented the 'open' D. dress, which consisted of a helmet and waterproof jacket. The air pumped in at the helmet was allowed to escape below the jacket, and hence it was called 'open.' The great drawback to this dress was that it obliged the diver to remain in an upright or gently stooping posture. Siebe accordingly invented the close dress in 1857, and this type is now in general use. It consists of a waterproof costume of strong twill and india-rubber, covering the whole body except the head and hands. The helmet is made of tinned

lost treasure. The difficulties of the work were such that dependence on air from above was not desirable and an apparatus was used that enabled the diver to purify the air by carrying oxygen, stored in bottles, which made him independent of outer supplies. Up to this time the lowest depth at which a diver was able to work was about 200 feet, and even from this depth it was necessary to ascend by slow and tedious stages, if he would avoid ill effects; but recently Neufeldt and Fuhrke of Kiel, Germany, invented a diving dress capable of standing the pres-



A DIVER AT WORK IN A PRACTICE TANK



Fox Photos

THE DEEP SEA DIVING OUTFIT

copper, and fitted with three strong plate-glass windows in front. The middle eyepiece is made so that it can be unscrewed, in case the diver wishes to speak or rest without removing his helmet. The air is supplied from a pump by means of a vulcanised india-rubber pipe which is attached to an inlet valve in the back of the helmet; the outlet valve is also fixed to the back. The escape valve is in some patterns regulated by the diver, but more commonly if an adjustable valve is desired, a self-righting pattern is used. A life line is attached to the diver's waist for signalling purposes. The boots of a diver are heavily weighted, with leaden soles, and weigh about 20 lb. each; additional weights are attached to the shoulders when required. The First World War gave a strong impetus to D., as many of the ships that were sunk by submarines contained gold and other valuables estimated in some cases to be worth millions of pounds. Where these vessels lay upon a sea-bed that was not in very deep water and in places easily located the divers were remarkably successful, sometimes recovering practically the whole of the

sure of 25 atmospheres, in which divers have already worked at as great a depth as 515 ft., and for which it is claimed that their tasks can be carried on at as low a depth as 750 ft. This dress consists of an envelope of steel and aluminium.

Divining Bell, see DIVING.

Divining Rod (known also as *Virgula Divina*, *Baculus Divinatorius*, *Caduceus*, or *Mercury's Wand*, *Aaron's Rod*, etc.), a forked branch usually of hazel, willow, or rowan, or sometimes artificially made, or a Y-shaped metallic rod (iron, brass, or copper), by means of which water or minerals may be discovered beneath the earth's surface by certain persons apparently possessed of the requisite powers. The rod suspended by its two prongs (often between the balls of the thumbs), and held thus in front of the holder, twists, or quivers suddenly when the exact spot is reached, bending down towards the concealed mine or spring. This belief is very old; *Agricola*, *Sperlingius*, and *Kirchmayer* all believed in the occult powers of the magic wand, but the modern use of the divining-rod by 'dowsers' should not be confused with the auct. wand. An-

other use was to discover the authors of a crime, as used by Jacques Aymer in the case of murder and robbery at Lyons, 1692. The divining rod of hazel or willow was used by prospectors for metals in the Hartz Mts. of Germany in the fifteenth century, and the custom was adopted in the next century in Cornwall where it persisted until recent times. Some diviners use a polished stone held at the end of a string like a pendulum instead of a D. R. The stone revolves quickly or slowly, clockwise or anticlockwise, thus, it is claimed, transmitting its message to the holder. See H. Mayo, *On the Truth Contained in Popular Superstitions*, 1847, 1851; A. Laug, *Custom and Myth*, 1884; J. Mullins, *The Divining Rod*, 1891; B. Tompkins, *Springs of Water*, 1925; T. Besterman, *Water Divining*, 1938; H. de Franco, *The Elements of Dowsing*, 1948.

Divinity, see Theology.

Division, unit of the army which contains all branches of the service, and which is usually under the command of a general. The name is also applied to other sections of the army, but in general use its name implies as above. It may also be regarded as a section of the army which is capable of acting independently of the rest of the army. Its numbers, whilst theoretically fixed, differ very considerably under the conditions of active service. Three infantry Ds. are united together to form the chief basis of an army corps. Brit. infantry D. consists roughly of 350 officers, 10,000 men, 2100 horses, 20 guns, and 400 wagons or the armoured-car equivalents of cavalry, together with a tank unit. There are three infantry brigades in an Eng. Army D., but in the Dominions there are four, and a D. in, e.g., the Australian Army, runs to at least 16,000 men on active service. The name, as has been pointed out above, is given to other sections of the army. Two brigades of cavalry, or at home four, are called a cavalry D. The name is applied to a lieutenant's command in the artillery, and the garrison artillery of the whole country was grouped into Ds., which comprised regulars, special reserve, and territorials under the new territorial scheme. These Ds. were formed in the military dists. into which the whole of the country is divided. The term D. applies also to the navy. The fleet is divided up into two or more Ds., each of which is divided into subdivisions. Each subdivision is commanded by a flag-officer.

Division of Labour: 1. In political economy a phrase used by Adam Smith, and since become current, to denote the separation of the aggregate labour necessary to produce any one complete manuf. into various distinct processes, and the assignment of each of the processes to a different labourer or body of labourers. D. of L. may be said historically to have begun with the specialisation of industry, or the earliest separation of different trades and employments from one another. The modern application of the term D. of L. to the specialisation of processes, as distinct from specialisation of industries,

is no more than an extension of the same essential conditions. The effect of D. of L. is a proportional increase in production, the great increase of the quantity of work, which the same number of people are capable of performing, being by Adam Smith referred to three causes: (1) The increase of dexterity in every particular workman; (2) the saving of time which would be lost by passing from one kind of work to another; and (3) the invention of many labour-saving devices or machinery by reason of workmen becoming thoroughly familiarised with their own particular operations; to which has been added (4) remuneration of different agents at different rates in lieu of paying for the easy and difficult labour at an equal rate, a result which would follow from all the work being done by one man. But there are many serious countervailing disadvantages: (1) Deadening of the faculties from their constant concentration on a single operation, involving as a corollary the inadaptability of the average workman to any other form of work; (2) the impairment of the physique of workmen, due partly to monotony of work, and partly to the herding together of great numbers of operatives in large industrial centres. But the passing of the Factory Acts, the collective action of trades unions in securing an amelioration of the conditions of labour, and, in a less degree, to private munificence of particular employers in the provision of healthful dwellings, has in a measure counteracted the physical drawbacks of D. of L.

2. In biology the physiological D. of L. in the organs of the same individual body, with an accompanying diversification of structure. In the protozoa, or most primitive animals, there is no D. of L., the individual being composed of one vital unit or cell, which consequently performs all the various functions of motion, nutrition, propagation, etc. In the second cardinal division of the animal kingdom, the metazoa or multicellular animals, the lowest forms contain at least two sets of cells, each adapted to the performance of distinct functions, and consequently there is at least a binary D. of L. Higher in the scale the subdivision becomes even greater, until all the essential functions are performed by different organs.

Divorce, dissolution of the bonds of marriage by legal process. By Eng. law, prior to the Matrimonial Causes Act, 1857, the actual dissolution of the marriage tie, a *D. a vinculo matrimonii*, could only be obtained by Act of Parliament, and the courts could only grant a decree of judicial separation, *a mensa et thoro*, i.e. from board and bed, such as had formerly been granted by the ecclesiastical courts. Decrees of nullity, however, could be granted. The div. of the Supreme Court of Justice, known as the Probate, Admiralty, and Divorce Div., has jurisdiction in all matrimonial matters, and can grant decrees in suits for D., judicial separation, nullity, and restitution of conjugal rights.

Grounds of Petition.—A petition may be presented either by the husband or the

wife for (a) adultery; (b) desertion without cause for at least three years; (c) cruelty; (d) incurable unsoundness of mind of respondent—but respondent must have been continuously under treatment and care for at least five years immediately preceding the petition. A wife may petition on the ground that her husband has, since marriage, been guilty of rape, sodomy or bestiality (save for these grounds husband and wife are on equal terms in applying for D.). A petitioner who also has committed adultery must seek the court's discretion, otherwise the petition will fail. In relation to the court's discretion in such cases the decision in *Blunt v. Blunt* 1943 is important. It was there decided that the chief considerations to be taken into account as warranting the exercise of the discretion in favour of a petitioner are: (i.) the position and interest of any children of the marriage; (ii.) the interest of any party with whom the petitioner has been guilty of misconduct, with special regard to the prospect of their future marriage; (iii.) the question of reconciliation if the marriage is not dissolved; (iv.) the interest of the petitioner, and in particular that the petitioner should be able to re-marry and live respectably; and (v.) the interest of the community at large, to be judged by maintaining a true balance between respect for the binding sanctity of marriage and the social considerations which make it contrary to public policy to insist on the maintenance of a union which has utterly broken down. Petitioner may also sue the co-respondent for damages. There is no exact legal definition of 'desertion'; but it implies the leaving the other spouse without consent (*Hard v. Hard*, 1858). Refusal to obey an order for restitution of conjugal rights is constructive desertion. 'Cruelty' includes danger to life or limb, or to health, bodily or mental. Prior to the Matrimonial Causes Act, 1937, the court was bound to satisfy itself that the petitioner had not 'connived at or condoned' the adultery but under the above Act petitioner must satisfy the court that 'there has been no collusion, connivance or consent'. The Act does not, however, state how the court should exercise its duty of inquiry, though it would seem that if the court is not satisfied, it should, before dismissing the petition, either ask for witnesses to be called who might be able to assist, or call on the King's Proctor. But even if the respondent were called, he (or she) could not be compelled to answer any question tending to show that he (or she) had committed adultery, unless he (or she) chose to admit it or gave evidence in denial. There is no narrow definition of 'collusion' but it exists where the originating of the petition is founded on an agreement between the parties or their agents.

A petition for *judicial separation* may be presented on any grounds on which a petition for D. might have been presented or on the ground of failure to comply with a decree for restitution of conjugal rights or on any ground on which a decree *a mensa et thoro* might have been pro-

nounced. Where the court grants the decree it is not, since the Act of 1937, obligatory for petitioner to cohabit with respondent. The grant of the decree does not bar presentation of a petition for D. upon substantially the same facts.

Nullity.—A marriage is void *ab initio* where the parties cannot or have not contracted a valid marriage—e.g. a bigamous marriage, a marriage induced by fraud, or a marriage within the prohibited degrees of affinity. Prior to the Act of 1937, non-consummation for physical or mental defect was the sole ground on which a regular marriage was voidable. New grounds of nullity, since the Act of 1937, are: (i.) non-consummation owing to wilful refusal of respondent to do so; (ii.) that either party, at marriage, was of unsound mind or a mental defective; (iii.) that respondent has suffered venereal disease in a communicable form; (iv.) that respondent was at the time of marriage pregnant by some person other than the petitioner. Generally speaking, however, grounds ii., iii., and iv. will not nullify the marriage unless the petitioner were ignorant of the facts at the time of marriage and, in any case, proceedings must be begun within a year; nor will the court grant a decree unless it is satisfied that marital intercourse with the consent of the petitioner has not taken place since the discovery by petitioner of the existence of the grounds for a decree.

Parties may legally marry again after a decree of D. is made absolute; i.e., until 1946, six months after the decree *nisi* has been pronounced, if the King's Proctor has not successfully intervened on the ground of collusion, etc. As a result of the report of the Denning Committee on Procedure in Matrimonial Causes, the period between decree *nisi* and decree absolute has been (as from August 6, 1946) reduced from six months to six weeks; for once the object of the six months' interval was kept in mind it was difficult to justify the delay except in cases where further investigation of the *bona fides* of the petitioner's case was necessary. Many cases that come before the courts are so plain that any further investigation is superfluous. The reasons why the period of six weeks was selected were twofold: (i.) it is sufficiently long for the King's Proctor to exercise his function, but not so long as to be an undue burden on the innocent petitioner; (ii.) it is the time limited for appeal to the Court of Appeal, so that it can apply in all cases defended or undefended where the time limit for appeal has expired without an appeal having been lodged; and finally the recommendation by the Committee had the advantage that it could be effected without an Act of Parliament. The parties may not, however, marry if a decree for judicial separation only is granted. No petition for D. may be presented during the first three years after marriage unless the judge allows it on the grounds of 'exceptional hardship' suffered by petitioner or 'exceptional depravity' of respondent. These two grounds are entirely within the court's

discretion, and, in determining an application, the court must have regard to the interests of the children.

Separation orders may be made (Summary Jurisdiction Act, 1895) by courts of summary jurisdiction after conviction of the husband for aggravated assault, for desertion, persistent cruelty, neglect of maintenance, resulting in living apart and (Licensing Act, 1902) habitual drunkenness. In Scotland, adultery or desertion for four years is a ground for divorce for either party, and a party may not marry the person with whom adultery has been committed.

In 1926 an Act was passed to make unlawful the pub. in newspapers of unwholesome details of divorce cases; and under that Act only the following details may be reported: names, addresses, and occupations of parties and witnesses; concise statements of charges; points of law; and the judge's summing up. The effect of the Act has been to stifle reports for the most part, especially as points of law are of no interest to the great majority of newspapers. In regard to procedure, the Administration of Justice Act, 1920, provided a cheaper and more convenient method of obtaining D. in undefended cases, and also made special provision for those who petition as poor persons. As the chief difficulty of many persons in the provinces lay in taking proceedings a long way from their places of residence, a real hardship was thereby removed in a large number of cases. As to evidence the *cause célèbre* of *Russell v. Russell* (1921), estab. that statements relative to access or non-access which are calculated to affect the legitimacy of issue are not admissible in evidence. This ruling has practically eliminated the chief evidence on which numerous decrees had previously been granted and opposes new difficulties to petitioners who may have been absent from their usual places of residence even for long periods. Another important judicial decision was that of Lord Merivale in *A. v. A.* (1928), (45 T. L. R. 19) to the effect that the court would refuse to sanction the practice of resorting to hotels to estab. a *prima facie* case for dissolution of marriage. In *P. v. P.*, another case also decided in 1928, the same judge exercised his discretion in favour of a petitioner who was also a guilty party, it being held that the circumstances were such as to allow relief to be granted.

Alimony.—While a D. suit is in progress, the husband is liable to provide his wife with alimony or maintenance. The amount is usually one-fifth of his income. After a D. has been pronounced, the court fixes permanent alimony. This is often at such an amount as will make up the wife's income to one-third of the joint incomes but the court has a wide discretion in this matter.

So far as statistics are concerned, it is evident that the rate of D. has increased considerably in recent years. In 1880-82 the number of divorces and annulments of marriages in England, Wales, and Scotland, was 366. In 1929 it had risen to 4013, being an increase of 800 on the pre-

vious year and the highest figure then on record. In 1937 the total was 5335 and the number has tended steadily to increase since then: 1938, 7038; 1939, 7211; 1940, 8495; 1941, 7146; 1942, 8666; 1943, 11,315; 1944, 14,048; 1945, 15,030. In 1946 no fewer than 31,457 Ds. were granted in England and Wales. A large number of these were childless unions, and an analysis of the figures suggests the stabilising influence of offspring. Statistics show that many divorced persons soon form other unions and that these re-marriages of the divorced occur largely in the early twenties. Consult *Phillips on Divorce*, 1939; *William Lacey, on Divorce*, 1940; and *Rayden, on Divorce*, 1949.

Divorce in the U.S.A.—In the U.S.A. there is no federal law of D., nor any jurisdiction of the Federal Courts, the different states have their separate laws, and there are forty-eight different jurisdictions. S. Carolina provides no means of obtaining a legal D.; adultery, cruelty, or desertion are the grounds in practically all states. In thirty-nine states imprisonment is a ground, in thirty-eight drunkenness, in twenty-two neglect of maintenance. In some of the states other causes for divorce are insanity, venereal disease, addiction to drugs, and impotence. Restrictions on D. are greater in the E. states and lesser in the W. states. The rate is lowest in the Southern states of Louisiana, New Mexico, and Arizona, where Rom. Catholic influence is strong. Some of the states grant D. for comparatively trifling reasons, e.g. incompatibility. The prevalent opinion in Great Britain on the subject of D. in the U.S.A. is that the rate of D. to marriage is so high that Amer. family life is in serious jeopardy. This opinion, largely based on the wide circulation given by the Press to all cases concerning Amer. film 'stars,' is no doubt exaggerated; but as compared with the rate in Great Britain the Amer. rate is certainly high: assuming e.g. approximately 411,000 marriages (1916) in Great Britain and 31,457 divorces, the rate per 1000 marriages is about 7.33; assuming 2,300,000 marriages in the U.S.A. in 1946 and 620,000 divorces, the rate per 1000 is about 269.56. On the other hand, the rate varies considerably in the different states: e.g. while it doubled in Nevada in 1927, as compared with the year 1926, it declined by over 33 per cent in Vermont. These variations, however, merely corresponded to changes in the law, which in the former case reduced the period of residence necessary to secure a final decree and increased it in the latter state. In Nevada only three months' residence is required. Hence people of means flocked there to secure their decrees. In Reno the famous 'divorce mill' of the state, 2000 decrees were granted annually. Amer. statisticians are at pains to point out that marriages have greatly increased in the U.S.A., and that the divorce rate should be based not on the total population, but on persons of marriageable age, which, however, varies with individual opinion. During the

11 years 1936-46 there were 17,565,000 marriages and 3,739,000 divorces in the U.S.A. For the country as a whole, therefore, there were 4.9 marriages for every divorce reported. The number of marriages between 1936-45 was fairly evenly maintained at an average of 1,526,500 but the number of divorces rose from 236,000 in 1936 to 502,000 in 1945.

Diwan, see **DIVAN**.

Diwanieh, or **Divanieh**, tn. of Asiatic Turkey, situated on the r. b. of the Euphrates, about 95 m. S.E. of Bagdad, a strategic military post. Pop. 335,000.

Dixcove, tn. in the Gold Coast Colony, W. Africa. It is situated N.E. of Cape Three Points. Pop. 1000.

Dixie, name popularly applied to the S. states of the U.S.A. There are various explanations of the origin of the word. The S. states were those S. of the Mason and Dixon line, and Dixie is supposed to be a corruption of Dixon. Another story has it that it came from the paper money printed in Louisiana before the Civil War. Owing to the number of people of Fr. extraction living in the state, the paper money had one side inscribed in Fr. 'Tend-dollar bills therefore had the Fr. word for ten, which is 'dix.' In popular nomenclature the bills became known as 'Dixies.' And Daniel Emmett gave it immortal currency in his famous song 'Away down South' which to this day is the favourite tune in the S. states.

Dixie, Lady Florence (1857-1905), Eng. author and explorer, the daughter of the Marquis of Queensberry, b. in London. In 1878-79 she explored the wastes of Patagonia and acted as war correspondent of the *Morning Post* in the Boer War of 1880-81. It was mainly through her efforts that Cetewayo was released and sent back to Zululand. She was an ardent advocate of women's rights. In 1875 she married Sir Beaumont D. Among her writings are: *Across Patagonia* (1880), *In the Land of Misfortune* (1882), and *Aniwee; the Warrior Queen* (1880), and numerous poems.

Dixie Highway, Amer. road extending from Lakes Michigan and Huron to Florida and by a branch through Nashville, Tennessee. It is 1930 m. long in its W. and 2169 in its E. div. Dixie Overland Highway runs from Savannah, Georgia, to San Diego, California, is 2660 m. in length and passes through Columbus, Meridian, Vicksburg, Dallas, El Paso, and Phoenix.

Dixmude (**Dixmulden**), Belgian tn. in W. Flanders, 15 m. S. of Ostend. Has a trade in linen, chicory, butter, and cattle. Pop. 3,500. During the First World War it was in the battle line almost throughout the operations on the W. Front. Situated on the R. Yser, about midway between Ostend on the N. and Ypres on the S., its position exposed it to much bombardment and the tn. was almost destroyed. A Franco-Belgian force maintained hold on the tn. in 1914, after which the appropriate sluices were opened and a large flooded area kept the opponents apart. The Belgians entered the tn. again in Sept. 1918.

Dixon, city of Illinois, U.S.A. and the cap. of Leo co. It is situated about 97½ m. W. of Chicago. There are tanyards, and manufs. of boots and shoes; there are also extensive flour mills. Pop. 10,000.

Dixon Entrance, strait on the W. coast of N. America, situated between Queen Charlotte Is. (Brit. Columbia) and the Prince of Wales Is. (Alaska). It is 100 m. long, and an average of 70 m. in breadth.

Dixon, George (1820-98), Eng. educational reformer. From 1867-76 he was Liberal member of parliament for Birmingham, and from 1885-98 Liberal Unionist for the Edgbaston div. It was largely through his efforts that Birmingham secured Aston Hall and Park. He was largely responsible for the foundation of the National Educational League (1868).

Dixon, Henry Hall (1822-70), Eng. sporting writer who used the pen-name of 'The Druid,' b. in Cumberland and educated at Rugby and Trinity College, Cambridge. He began to write regularly for the *Sporting Magazine*, and pub. three novels in it, *The Post and the Paddock* (1856), *Silk and Scurlet* (1858), *Scott and Sebright* (1862). Other writings were: *Field and Fern*, an account of the herds and flocks of Scotland (1865), *Saddle and Siroin*, of those of England (1870), and *The Law of the Farm*, a legal treatise (1858). See F. Lawley, *Life and Times of 'The Druid'*, 1895.

Dixon, Richard Watson (1833-1900), Eng. poet and churchman, b. in London, and educated at Birmingham and Pembroke College, Oxford, where he joined the 'Birmingham group' of the Pro-Raphaelites, including Morris and Burne-Jones. He was ordained in 1858 and was successively vicar of Hayton, Cumberland, and Warksworth, and honorary canon of Carlisle. His first two books of verse, *Christ's Company* and *Historical Odes*, were pub. in 1861 and 1863; *Mano*, an historical poem in terza rima, which won the prize of Swinburne (1883), *Odes and Eclogues* (1884), *Lyrical Poems* (1887), and *The Story of Eudoca and her Brothers* (1838). His prose works include a life of his father (1871) and *History of the Church of England* (1878-1902). See Lt. Bridges, *Selected Poems and Memoir*, 1909; C. C. Abbott (ed.), *The Correspondence of Gerard Manley Hopkins and Richard Walter Dixon*, 1935.

Dixon, William Hepworth (1821-79), Eng. writer and traveller, b. at W. Ancoats, Manchester. He began his life as a clerk in his native city. His series of papers in the *Daily News* on 'The Literature of the Lower Orders,' and 'London Prisons,' attracted attention. In 1849 he pub. *John Howard and the Prison-World of Europe*, which attained great popularity. In 1851 appeared *William Penn*, in which he refuted the charges brought by Macaulay against the eminent Quaker. A visit to the United States in 1866 was followed by *New America* (1867) and *Spiritual Wives* (1868).

Dizful, tn. of Persia in the prov. of Khuzistan. It is an important mkt. and

makes cotton goods. In the vicinity are the ruins of Susa. Pop. 30,000.

Djezzar, Ahmed (c. 1735-1804), surnamed 'The Butcher' on account of his cruelty, b. at Bosnia and became the slave of All Bey in Egypt. He rose to be Governor of Cairo, and finally Pasha of Acre and Damascus, in which position, with the help and advice of Sir Sidney Smith, he successfully defended Acre for a month (1799) against Napoleon.

Djibuti or **Jibuti**, Fr. tn. and port on the Gulf of Aden, S. of Tadjura Bay, in E. Africa, cap. of Fr. Somaliland and terminus of the railway via Dire Dawa to Addis-Ababa in Abyssinia, of which it is the outlet on the Indian ocean. Following the Fr.-It. armistice in 1940 a Franco-It. armistice came to D. on Sept. 2, 1940, to arrange terms between Italy and Vichy France, by which Italy secured full rights in the port of D. and along the Fr. section of the railway. The Fr. surrender of D. isolated British Somaliland and thereby facilitated its capture by the Italians. Early in 1941, however, Brit. forces advanced on the railway and by summer of that year D. was under close blockade. On 28 Dec. 1942 Fr. Somaliland joined the Allies.

Djidjelli, tn. of Algeria in the dept. of Constantine. Exports cork, wine, and sardines. Pop. 11,400.

Djinn, see JINN and DEMONOLOGY.

Djizzak, see DZHIZAK.

Dmitrieff (Dimitriev) Radko (1859-1919), Bulgarian general who served with the Russian army during the 1914-18 War. He commanded the army which unsuccessfully besieged Przemyśl during Sept.-Oct. 1914; his losses were very severe—70,000 casualties. At the Battle of Cracow (Nov. 1914) he showed great skill as a leader, and succeeded in driving back an Austro-Hungarian army. In the Battle of Dunajec-San (q.v.) in the spring of 1915 he commanded the Third Army, and suffered another heavy reverse at Gorlice-Tarnow, where an Austro-German force made a very wide break in his line and captured over 50,000 prisoners. He tried to hold up the enemy at the Lupkow Pass, but failed, and as a consequence Brusilov's (q.v.) army was also compelled to withdraw. After the Russian revolution he was murdered by the communists at Piatigorsk.

Dmitriev, Ivan Ivanovitch (1760-1837), Russian statesman and poet, b. in Simbirsk. He served for some time in the army, but soon left it for the Civil Service. From 1810-14 he served as minister of justice under the Emperor Alexander. He occupied himself with literature during his leisure moments, and after his retirement in 1814. Among his poems are songs, odes, satires, tales, epistles, and his fables, partly trans. from La Fontaine and Florian, are among the best in the language.

Dmitrievsk, tn. of the Ukrainian S.S.R. with coal mines and metal and chemical industries. Pop. 54,000.

Dniepropetrovsk (formerly Ekaterinoslav) (1) region of the Ukraine, bounded on the N. by Poltava and Kharkov, on

the E. by the ter. of the Don Cossacks, on the S. by the Sea of Azov and Taurida and on the W. by Kherson. Its area is 21,500 sq. m. and its pop. about 3,500,000. Its surface is mostly steppe and its soil is the fertile black earth which yields large grain returns. The chief iron deposits of the Ukraine are found in the W. part of the region, and considerable and varied manufs. are carried on. (2) City in the Ukraine and cap. of the region of the same name, situated on the Dnieper. It is one of the greatest Ukrainian centres for iron working. It was a lovely old-fashioned type of Ukrainian city, and had broad avenues, beautiful trees and handsome old buildings and homes. The new buildings are typically modernish and are for the most part apartments and workers' dwellings. The principal factory is a steel-tube manuf. plant employing (1940) 9000 men and is engaged in turning out pipes and tubing and other forms of finished steel products and seamless pipes. Its open-hearth steel capacity was (1940) 440,000 tons. It has also manufs. of agric. machines, tractors, ball-bearings, machine tools, railway wagons, tobacco, soap, and tanneries. D. was taken by the Gers. in 1941 and reoccupied by the Russians on Sept. 27, 1943. Pop. c. 400,000.

Dnieper, or **Dnyepyr**, third largest European riv. after Rs. Volga and Danube, rising on the Valdai plateau in the region of Smolensk, flowing past Mogilev, Kiev, Dniepropetrovsk, Kherson, and other important tns., entering the Black Sea at Dnieper Iliman (estuary or gulf), E. of Odessa. Its chief tribs. are Rs. Berezhina, Pripyet or Pripyat, Ingulets, and Teteriv on the r. b., Rs. Sozh, Desna, Sula, Psol, Vorskla, Orel, and Samara on the left. Steamers ply between Orsha and Dniepropetrovsk, and Zaporozhe and Kherson. The rapids (porogs) below Dniepropetrovsk hinder navigation considerably. Length about 1400 m.; navigable from Drogobuzh. Quantities of corn, timber, hemp, and other goods are shipped on the D. and its tribs. It is connected with the Baltic by Rs. Dvina, Niemen, and Vistula, and their uniting canals Berezhina, Oginski, and Dnieper-Bug. The anc. name was Borystheneis, later Danapris (Turkish, Uzl); it is marked on medieval maps as Elicl, Luosen, or Lerene. There are important fisheries in the estuary. At Kiev the riv. is ice-bound for about three months in the year, and there is a bridge across: at Smolensk the waters are frozen for about half the year. In summer the river is 35 ft. deep at Kiev, and often rises much higher, to over 50 ft. in the spring floods. The width varies from under 470 to 2300 yds. The D. played a large part in the making of Russia before the Mongolian invasions (thirteenth century), and later in the life of Little Russia. Near its mouth was the Milesian colony of Olbia, estab. for trading with the interior. Great battles were fought on the D.'s banks in the Second World War. The Gers. crossed the riv. in 1941 but, at the turn of the tide of war in 1943, they were standing, back again, on the middle

and lower D. with a switch line to the sea of Azov through Melitopol to cover the Crimea. The Russians, however, quickly broke the Melitopol line, cut off the landward approaches to the Crimea and broke into the Great bend of the D. making rapid progress towards Krivof Roc. By the end of the year the Russian were forcing the Gers. to abandon their last hold upon the D. above Kremenchug, the month of Dec. being characterised by the success of the Russian offensive on the middle and lower D. The Gers., in their retreat, left strong formations on the middle and lower D. but early in the next year (1944) the Russian armies of the Ukrainian sectors fell upon their formations and inflicted on them a bloody defeat. For details of these battles see EASTERN FRONT or RUSSO-GERMAN CAMPAIGNS IN SECOND WORLD WAR.

Dniester, or **Dnyestr**, riv. of S. Russia, rising in the Carpathians and flowing into the Black Sea 40 m. S.W. of Odessa. It separates Bessarabia from the Ukraine (Podolia), and in its course passes Sambor, Halicz, Khotin, Mohilev, Bender, Akerman, and other important places. Its chief tribs. are Rts. Stryi, Reut, Botna, on the r. b., R. Sereth on the left. Navigation begins for steamers at Khotin: near Yempol, where it crosses the granite ridge of S. Russia, the rapids make navigation very dangerous. It is about 800 m. long; 180 to 350 yds. wide and 3 to 17 ft. deep. It ships much timber and corn, especially from Odessa. The ancient name was Tyras or Danastria (Turkish Turlia). Its mouth in the Black Sea is called Dniester Liman. In the invasion of Russia the Ger. crossed the D. soon after the invasion was launched in June 1941 but the Russians crossed the riv. on a 30 mile front on March 19, 1944. For details of these battles, see EASTERN FRONT or RUSSO-GERMAN CAMPAIGNS IN SECOND WORLD WAR.

Dobb's Ferry, small tn. of New York, U.S.A., situated in Westchester co. The reputation of the tn. rests chiefly on its historical connection with Washington, Clinton, Rochambeau, and other leaders of the War of Revolution. It is now a residential suburb of New York City. Pop. 6000.

Dobell, Sydney Thompson (1824-74), Eng. poet and critic, b. at Cranbrook, Kent. In 1836 his father, a wine merchant, removed to Cheltenham, with which D. was connected for the rest of his life. The influence of his grandfather, Samuel Thompson, brought him into contact with the 'Free-thinking Christians.' In 1850 under the *nom de plume* of 'Sydney Yendys' he pub. *The Roman*, which met with great success. *Balder* appeared in 1854; *Sonnets on the (Crimean) War*, in which he was assisted by Alexander Smith in 1855; *England in Time of War* in 1856. D. belonged to what has been called 'the spasmodic school' of poets. The undoubted charm of some of his lyrics and the value and originality of some of his thoughts are often marred by excess of metaphor and a general dreariness and nervelessness only relieved by bright

'spasmodic' flashes. See J. Nichol, *Poetical Works of Dobell*, with Memoir, 1875, and the collection of his prose works under the title *Thoughts on Art, Philosophy and Religion*; selected from the *Unpublished Papers of Sydney Dobell*, by the same writer, 1876; and Emily Jolly, *Life and Letters of Sydney Dobell*, 1878.

Döbeln, tn. of Saxony, Germany, in the prov. of Leipzig, situated on an is. formed by the Mulde and the Mühlgraben, 41 m. N.W. of Dresden by rail. Noted for iron foundries and manufs. of metal and wooden wares. Pop. 24,700.

Doberan, or **Dobberan**, tn. and watering place in the former grand-duchy of Mecklenburg-Schwerin, Germany, on a small riv. flowing into the Baltic, about 9 m. from Rostock. It has a Gothic church (1300-1368), a former Cistercian Abbey with many art treasures, and the tombs of numerous princes of Mecklenburg. It has been much frequented on account of its radio-active steel springs. Pop. 7000.

Dobereiner, Johann Wolfgang (1780-1849), Ger. chemist, b. at Bug near Hof, in Bavaria. In 1810 he was appointed professor of chemistry, pharmacy, and technology at Jena, where he made the acquaintance of Goethe. He is chiefly famous for an invention known as 'Dobereiner's Lamp,' in which he demonstrated that spongy platinum in presence of oxygen can ignite hydrogen; a process which has been used in many self-igniting coal-gas burners. He obtained the crystalline compound of alcohol with ammonia, and discovered furfural. His works include treatises on pneumatic chemistry (1821-25), and the chemistry of fermentation (1822). He was one of the first to try to group elements according to their atomic weights, thus helping to prepare the way for Mendeleev's Periodic System. He also discovered the catalytic effect of manganese dioxide upon the decomposition of potassium chlorate by heat.

Dobree, Peter Paul (1782-1825), Eng. classical scholar and critic. At Trinity College, Cambridge he became an intimate friend of Porson, and in 1823 was appointed regius professor of GK. After Porson's death D. was commissioned to edit the pub. of his notes on GK. authors, and brought out the *Plutus* of Aristophanes in 1820 and all Porson's *Aristophanes*. In 1822 he pub. the *Lexicon* of Photius, and left an ed. of Demosthenes unfinished at his death.

Dobrainka, tn. of Russia, about 50 m. N. of Chernigov. Pop. 10,000.

Dobritsh, see BAZARDJIK.

Dobromierz, see HOHENFRIEDBERG.

Dobrowsky, Josef (1753-1829), Slav philologist, b. at Gjermet, near Raab, in Hungary, of Bohemian parents. In 1792 he was commissioned by the Bohemian Scientific Society to travel all over Europe in search of the MSS. which had been scattered during the Thirty Years war. Among his works are: *Scriptores Rerum Bohemicarum* (1783-84), *Ausführliche Lehrgebäude der böhmischen Sprache* (1792), and *Institutiones Linguae Slavicae dialecti veteris* (1822). See life by F. Palacky, 1833.

Dobrudja, dist. of Rumania and Bulgaria. It is a low tract of Quaternary alluvium which stretches for a distance of 140 m. along the Black Sea. It rises in Sacar Bair to a height of 7765 ft., but the mean elevation of the dist. is only about 500 ft. During the First World War Rumania, after declaring war on Austria-Hungary, Aug. 27, 1916, at once advanced into Transylvania on a front of 350 m. while holding the Dobrudja with a comparatively small force. Later, the Austrians, who had been taken by surprise, reinforced by Ger. troops, advanced into the Dobrudja under the Ger. field-marshal, Mackensen, on Sept. 4, and Turtucain fell to them on Sept. 6. Ten days later Silistria was also taken and a new Russo-Rumanian defensive line was constructed between Rasova and Tuzia in the Dobrudja. The Rumanians continued to lose ground in their new sector until the second week in Nov. 1916, when they retook Hirsova. But this success was not consolidated, they were overwhelmed on other fronts, and fighting in the Dobrudja generally came to a standstill. It was prematurely agreed among the govts. of the Central Empires and those of their allies that the eventual disposal of the D. should be in the hands of Germany and Bulgaria, the new understanding being that Bulgaria should regain what she asserted had been taken from her by the Western Powers after the last Balkan War; but as the ultimate victory was with the Entente, Rumania retained the ter. In the Second World War, however, Rumania ceded the S. D. to Bulgaria by the treaty of Craiova, Sept. 7, 1940, Bulgaria gaining thereby the provs. of Durostor and Caliacra, an area of about 3000 sq. m. The D. was over-run by Ger. troops in March 1940 and was occupied, with all Bulgaria, until 1944. The N. part of the D. fell to the Russian armies with the capture of Galatz on Aug. 27, 1944. Constanza fell to them on Aug. 29. These captures, however, were from Ger. troops, for Rumania had accepted armistice terms on Aug. 23, and had joined the Allies. The peace treaty of 1947 confirmed the retention of S. D. by Bulgaria. See R. Vulpe, *La Dobroudja à travers les siècles*, 1939; B. Newman, *Balkan Background*, 1944.

Dobson, Frank (b. 1887), Eng. sculptor in bronze, born in London, son of Frank D., artist. Studied art from boyhood in London sculptor's studio and later in Cornwall. Exhibited in Venice, Dresden, Stockholm, Wembley, Paris and New York. His best sculptures include, 'The Man Child,' 'Morning,' 'Susannah' (bronze), Standing Figure (bronze), and a number of portrait busts, including a bronze bust of the Earl of Oxford and Asquith, and a brass head of Sir Osbert Sitwell, some of which are in the National Gallery of British Art, Tate Gallery, and Manchester City, Glasgow, and Leeds Art Galleries. A.R.A. 1942. Wrote *Pencil and Colour Drawings*. See *Frank Dobson*, ed. R. Mortimer, 1924.

Dobson, Henry Austin (1840-1921), Eng. poet, critic, and biographer, b. at

Plymouth; entered the Board of Trade in 1856; became a first-class clerk in 1874, and principal clerk in 1884, which last position he retained until his retirement from the service seven years later. It was, however, as a man of letters rather than a gov. official that Austin D., as he usually subscribed himself, achieved fame. At an early age he came before the world as a poet; and he issued several books of verse: *Vignettes in Rhyme* (1873), *Proverbs in Porcelain*, (1877), *Old World Idylls* (1883), and *At the Sign of the Lyre* (1885). His collected poems were pub. in 1897. One of the greatest living authorities on the Georgian period, D. wrote mainly on that era, his principal works being monographs on Fielding (1883), Steele (1886), Goldsmith (1888), Horace Walpole (1890), Hogarth (1891), Richardson (1902), Fanny Burney (1903); and *Eighteenth Century Vignettes* (three series, 1892, 1894, 1896), and *At Prior Park and Other Papers* (1912). *The Complete Poetical Works* were ed. by A. T. A. Dobson, 1923, and a collected ed. of D.'s essays was issued in the World's Classics, 1923-26. See life by A. T. A. Dobson (1928).

Dobson, William (1610-46), an Eng. portrait and historical painter, b. at Oxford; apprenticed as a boy to Peake, a picture-dealer. Van Dyck befriended him, and he became his pupil and imitator, succeeding him as court painter to Charles I. D. painted portraits of Charles I., the Prince of Wales, Prince Rupert, and sov. courtiers. Examples of D. in the National Portrait Gallery, London, are: 'Francis Quarles,' 'Eudymion Porter,' and others. There are also three at Hampton Court. 'The Decollation of St. John,' is one of his best historical works.

Dobson, William Charles Thomas (1817-1898), Eng. artist, b. at Hamburg. His paintings were mainly on historical and scriptural subjects, including 'Tobias and the Angel,' 1853; 'The Charity of Dorcas,' 1854; 'The Holy Innocents,' 1858; 'The Good Shepherd'; and 'St. Paul at Philippi,' 1873, in the Diploma Gallery.

Docetæ, or **Docetism** (Gr. *dokein*, to appear), a name given in the early church to a group of heretics who believed that during His residence on earth, Christ had no real but only an 'apparent' or phantom body. The doctrine originated in the Gk., Oriental, and Alexandrine theory that 'matter' is essentially impure and imperfect, therefore the union of the divine spirit with matter was impossible. It appears in its most developed form among the Gnostics and Manichæans, and its believers were divided into three groups: those who held that the body of Christ was a real, earthly body, but had no essential connection with His divine nature; those who declared that His human body was a mere phantom, a delusion (Marcion, the Ophites, and Manichæans); and those who declared that it was an ethereal body, descended with Him from heaven (Valentinus, Basilides). The theory precludes the idea of the virgin birth and the Crucifixion, or holds them to be only 'phantoms.'

The docetic doctrine appears among the Priscillianists and the Bogomils, and also among a small faction of the Anabaptists. See Gnosticism; also Dorner's *System of Christian Doctrine*, 1880, and Harnack's *History of Dogma*, 1894-99.

Dochart, riv. and loch of Perthshire, Scotland. The riv. carries off the surplus waters of the loch, and flows in a N.E. direction for 13 m., finally entering Loch Tay at Killin. Salmon, pike, and trout are plentiful in the stream.

Dock, common name of many perennial tap-rooted species of *Rumex*, a genus of Polygonaceae, to which belongs also the

often minimised by locks which receive the vessel at the D. level, and then, by letting water out, drop it to the outside level. The depth given to a D. depends upon the depth of the channel by which it is approached. But owing to the great improvements made in the dredging system, the channels leading to most important ports have been deepened considerably, and in building a new D., the probability of any such improvement would be taken into account. The depth of channel available for vessels is reckoned from the high-water of the lowest neap tides. The period of time over which vessels can



AVONMOUTH DOCKS

Bristol Development Corporation

sorrel. *R. crispus*, the curled dock, *R. obtusifolius* the broad leaved dock, and *R. Britannica*, the greater water-dock, are all species found in Britain as weeds, and the leaves are used by children as a cure for nettle stings.

Dock, in marine and riv. engineering, a space or structure in or upon which ships may be placed to discharge or load cargo, or to undergo repairs. There are two main classes of Ds.: the wet D., with which the tidal D. may be classed, and the dry D., with which the floating D. may be considered.

A *wet dock* is a basin in a sheltered position, where vessels may lie alongside quays, which are fitted with proper appliances for taking on or discharging cargo. It adjoins the sea coast or a tidal riv., and is closed with gates so that the water in it may be retained at a uniform level when the tide has gone down. Quays usually surround the D. as much as possible, as it is of importance to secure as large a quay area as possible. The disadvantage of the wet D. is that vessels are able to enter or leave it only at high tide when the water outside and inside is at the same level. This disadvantage is

daily enter the D. depends upon the range of the tide. The approach channels to some of the S. Wales ports are inaccessible at low tide, for they are then nearly dry. It is in places where the range of tide is very great that the wet D. is used in preference to the tidal D. Liverpool, England, which possesses one of the finest D. systems in the world, is a case in point. Here the difference in level is over 30 ft., while in the Thames also it is some 20 ft. As a general rule it may be said that where the difference is more than 12 ft., wet Ds. are a necessity. The Liverpool D. system was developed greatly at the end of the nineteenth century, and the D. area is now some 1100 acres. The largest Ds. are the Canada (18 ac.), the Langton (18½ ac.), and the Alexandra (17½ ac.), with its branch Ds., area 44½ ac. The West Float Dock, with a water area of 52 ac., is the largest on the Birkenhead side of the riv. The Port of London Ds. cover an area of 4247 ac. with a water area of 722 ac. and provide 48 m. of quayage. The King George V D., connected with the Royal Albert D. and the Royal Victoria D., together form the largest sheet of enclosed dock water in

the world. The system is known as the 'Royal Docks' and affords 11 miles of berthing accommodation for shipping. The total area of these three Ds. (including land for extension) is 1102½ ac., water area, 247 ac., length of principal entrance, 800 ft., width of principal entrance, 100 ft., depth of principal entrance 45 ft.; and quays, 12½ m. These great Thames Ds. are 40 m. from the sea and only 5 m. by road from the heart of London. Other important London Ds. are the London, St., Katharine's, Surrey Commercial, E. India, W. India, and Millwall. The E. India Ds. have a total area of 67½ ac., water area, 31½ ac., length, width and depth of principal entrance, 300 ft., 80 ft., and 31 ft. respectively, and quays, 1½ m. The Tilbury Ds.—the first Ds. in the Port of London on approaching from the sea, are 24 m. from the Thames Estuary. They consist of a main D. and 3 branch Ds. Their total area is 725 ac., water area, 104½ ac., length, width and depth of principal entrance lock, 1000 ft., 110 ft., and 45 ft. respectively, and quays, 4 m.

A *tidal dock* is a basin similar to that described above, but open to the harbour waters, so that the level of the water in the D. rises and falls with the tide. Ds. of this kind are suitable where the difference between low and high tide is small. This state of things prevails on the shores of the Mediterranean and the Atlantic coast of N. America, and as examples of such Ds. we may cite those at Marseilles, Genoa, and Naples in the Mediterranean, and the Atlantic Ds., Brooklyn, in the U.S.A. Wet and tidal Ds. are usually constructed on low-lying land near the estuary of a river. The D. is here somewhat sheltered, and the excavation of the basin is facilitated by the lowness of the land. The river acts as an approach channel, and if, as in the case of the Albert and Victoria Ds., and Chatham dockyard on the Medway, described above, a sharp bend in the riv. be utilised, upper and lower entrances are easily provided. Other notable examples of Ds. formed on low-lying land adjoining a tidal riv. with consequently a sheltered approach are those at Liverpool, Hull, Southampton, Belfast, Antwerp, Rotterdam, Hamburg, and St. Nazaire. In the Mediterranean ports, where the basins are actually in the sea, breakwaters, as at Marseilles, are built to act as shelters. Examples of sheltered Ds., constructed on low-lying land bordering the shore and with direct access to the sea are Swansea, Hartlepool, Barrow, and Bombay.

Dry, or graving docks are basins of particular shape, which can be shut up, and from which the water can be pumped so as to leave the vessel's hull dry for repairs, repainting, cleaning, etc. The dry D. has access to the sea from one end only, and this end is furnished with gates, or caissons, fitted with sluices, so that all the water may be drained away; but when it has access to a wet D. the water must of course be pumped out. The other end is generally shaped round in the form of a ship's bows. On the face the walls are stepped, the steps being known as 'altars.' The bottom is heavily paved,

and slopes downwards from the centre so as to allow any water left in the D. to drain out. These Ds. were formerly constructed of timber in America, but they are now universally constructed, as formerly in Europe, of masonry, brickwork, or concrete. The 'altars' are lined with granite blue-bricks, or specially strong concrete, and additional steps and means of access are provided for the men to ascend and descend. Along the centre line of the D. bottom are keel-blocks, upon which the ship settles as the water is pumped out. When brought into the D., which is of a length and depth sufficient to receive the largest vessels frequenting the port, it is placed carefully in position over the keel-blocks, and shored up with timber shores resting on the steps, which retain it in an upright position as it settles down. The King George V Graving D., Southampton, opened by King George V. in 1935, is the largest dry D. in the world. It is 1200 ft. by 135 ft. The largest London dry D., out of thirty-three, is the Tilbury, which is 846 ft. long, 70 ft. wide at the entrance, and 35 ft. deep. The size of the Canada D., Liverpool, is 925 ft. long, 94 ft. wide at entrance, and 31 ft. deep at high water.

Floating docks have been built in late years to serve the same purpose as graving Ds. They have certain very obvious advantages, but these are counterbalanced by grave disadvantages. The advantages plainly are: (1) that the D. can be built in the cheapest and best place, no matter how far distant this may be from the place at which the D. is needed. Thence, it can be towed to its destination; (2) it can be moved from one port to another, or from one part to another of the same port, as seems most convenient; (3) it usually costs less to work than a dry D., where the cost of pumping out the water is apt to be very great. The disadvantages are: (1) that the durability is so much less, a floating D. cannot be expected to last for more than fifty years; (2) the cost of maintenance is generally much higher; (3) it cannot be used for such large vessels as can the regular graving D. A sheltered site, with a considerable depth of water, is necessary for a floating D., which consists of a number of pontoons or watertight boxes, of which some form the bottom of the D. and others the two sides. The pontoons are divided into water-tight compartments, and for filling or emptying these compartments there is machinery in the side boxes. The machinery usually consists largely of steam-pumps. The lower boxes are at first filled with water so as to be well below sea-level. The vessel is then floated in, and carefully adjusted in position over the keel-blocks. The water is then pumped out from the watertight compartments, and the bottom of the dock rises, lifting the vessel with it. Shores are at the same time placed between the hull and the side walls to retain the vessel in position. This continues until the hull of the vessel is well out of the water. The repairs are made, the D. is sunk, and the vessel floated out. Stability is ensured by making the displacement of

that part of the D. below the bridge greater than that of the upper part of the D. plus the greatest vessel it could take. Floating Ds. are now almost all constructed of iron and steel, and are carefully overhauled at regular intervals. The difficulty of doing this has led to a notable improvement in form. Under the old system, the floating D. had itself to be brought into dry D. at regular intervals. Now, however, the floating docks are made self-docking. That is to say, they are constructed in three parts, so that if one of these requires cleaning it can be detached and dry docked on the other two parts as though it were itself a vessel.

Dock entrances and locks.—Access to a D. may be either by entrances or by a lock. The former, being so much the cheaper, is used when possible. Entrances consist of one or more pairs of gates at the opening of the D. These are fitted with sluices, closed by vertical sluice-gates, which are worked by hydraulic pressure. In the case of a dry D. opening on to the sea, these enable the water to be drained entirely away, and in this case they are supplemented by culverts in the side walls. In the case of a wet D. they serve to bring the water in the D. down to the level of that outside. These entrances are economical, not only in money but also in space, and it is much more easy for a vessel to pass through them. The disadvantage is that they are available for a comparatively short period of time daily, unless the difference between high and low water levels be very small. Locks, on the other hand, form a watertight compartment *outside* the D. itself. At each end they are fitted with sluice-gates, as are the entrances. They are constructed on the same plan as the locks on canals and rivs., but the scale is much greater and more elaborate. When it is required to pass a vessel out from the D. into the open channel, water is first passed through the sluices from the D. to the lock-chamber, so as to bring both to the same level. The gates between them are then opened, and the vessel passes into the lock-chamber. This pair of gates is then closed, and the other sluices are employed to bring the water in the lock-chamber down to the level of that outside. The outer gates are then opened and the vessel leaves by that entrance. The lock-chamber must be long enough to receive the largest vessels likely to need docking. The gates which close the entrances and locks are constructed either of wood or of iron, braced carefully so as to resist the pressure of the water. The leaves are constructed to meet absolutely truly in the centre, and the greatest care is also exercised to make the union of the heel-posts and side walls thoroughly watertight. Of woods, greenheart is the most suitable in salt water, as best resisting the action of the teredo. D. gates are sometimes made straight and sometimes segmental. Rollers are often placed along the floor to support the outer ends of the gates in very wide locks. Sliding or floating caissons sometimes take the place of gates.

Recent Developments.—During the years 1918–39 great attention was being given to the problem of approach and exit from Ds. at all states of the tide, in view of the enormous loss in earning power and the cost in interest and charges incurred by great liners and other shipping. The chief case in point is Liverpool, which had long been harassed by the bar that made her a closed port during many hours of the day and night. With the opening of the Gladstone D. in 1927 the disability was largely removed, for this D. can be entered at all states of the tide, the famous bar having been successfully pierced in circumstances that made a new record in the hist. of dredging. The Gladstone D. is about 60 acres in area, and has quays 3 m. in length. This D. is slightly exceeded in size by the King George V. D. (London), which was opened in 1921, and which constituted a first step in a scheme to develop the R. Thames on both N. and S. banks so that greater ships can be brought near to the City. The Immingham D. near Grimsby, completed in 1912, led to development of trade in the area served. The many natural advantages of Southampton for dealing with great ocean liners have been still further supplemented by additions of great lengths to D. sides. The speed and ease with which the largest ships in the world can berth and start in this port is one of its chief assets, and its modern improvements have made it the leading passenger port in the world. Among other developments in D. construction during this period were the Esquimaux D. on Vancouver Island, Canada, opened in 1926, which has a length of 1150 ft.; a D. of about similar length opened in Durban, S. Africa, in 1925; while extensions at St. Johns, Canada, include a D. opened in 1923, which is 1165 ft. long. Before the Second World War much public interest centred on Singapore in view of the construction of its naval base. For details of the building of the base and its loss in the Second World War, see, under SINGAPORE BASE and SINGAPORE. *History.* Singapore is one of the greatest natural harbours in the world. In 1905 the Brit. gov. acquired Tanjong Ds., which it supplemented eight years later by the construction of the King's D. at a cost of £400,000. See L. F. V. Harcourt, *Harbours and Docks*, 1885; C. Colson, *Docks and Dock Construction*, 1891; C. Greene, *Wharves and Piers*, 1917; A. H. Hunter, *Dock and Lock Machinery*, 1921; B. Cunningham, *Dock Engineering*, 1922; Report on *Marine Structures* by the U.S. National Research Council (1921); R. S. MacElwee, *Port Development*, 1925; F. N. Du Plat-Taylor, *Docks, Wharves and Piers*, 1928, 1934; D. R. Johnson, *Modern Dock Operation*, 1929.

Dock Dues, see TONNAGE DUES.

Dock Warrants, in England, are certificates given to the owners of goods warehoused in the docks. When goods are transferred the certificates are endorsed in favour of the purchaser, and thus become a warrant for the removal of goods. Under the Factor's Act of 1889, it is a

'document of title,' and any person lawfully in possession of it, although not the owner of the goods, by endorsement and delivery of it has the absolute right to all goods described in it. Warrants may be obtained for the whole or a part of the goods consigned. All D. W. require a threepenny stamp.

Dockyards, Government (In America called Navy Yards), in the fullest meaning of the term are the establs. where warships are built and repaired, supplied with stores, ammunition, and men, and put in a state of complete efficiency. As a fact, very few yards are so complete. In many of them there is no ship-building at all, while in many more although the frame of the ship is built in the gov. yard, the machinery and fittings are supplied from the workshops of some engineering firm. All Brit. dockyards are under the Admiralty, and governed by officers under an admiral-superintendent at the larger yards, and the captain-superintendent at the smaller. All Admiralty instructions with regard to the building or commissioning of ships are directly conveyed to the superintendent, as well as to the officers more nearly concerned with the carrying out of the instructions. The chief Admiralty official is the Controller of the Navy (third Lord of the Board of Admiralty) and below him are the Directors of Dockyards, the Director of Stores, and the Director of Naval Construction. The chief artisans of a dockyard comprise the engineers, shipwrights, platers, caulkers, joiners, smiths, sail-makers, rope-makers, and a large body of labourers. The scale of pay is determined bi-annually by a special board. The great dockyards of England are Portsmouth, Devonport, Chatham, Sheerness, and Pembroke Dock; of the empire, Malta, Gibraltar, Ascension, Bermuda, Simonstown, Haulbowline (Ireland), Hong Kong, Sydney, and Wei-wei-wei. New docks, practically identical with those at Rosyth, were completed in Portsmouth just before the outbreak of the 1914-18 war. The docks at Rosyth under construction in 1910 were still far from complete when the war began, but were continued under great difficulties during the hostilities. The necessities of the Navy during the war brought a number of new bases into existence. Scapa Flow became the chief naval headquarters, while Inverness, Harwich, and Dover were adapted as additional naval centres. After the Armistice, Rosyth, Haulbowline, and Pembroke ceased to be of importance, the two last being closed. From 1922 the plan to build naval yards and docks at Singapore occupied a big place in political controversy. Construction, which was begun in 1923, was stopped when the Labour Party took office in 1924, and during the twelve months of the financial year 1924-25 the scheme was delayed, but was restarted by Mr. Baldwin's gov. of the following year. See further under SINGAPORE BASE. The principal dockyards of France are at Cherbourg, Brest, Lorient, Rochefort, and Toulon; of Germany, at Wilhelmshaven and Kiel;

of U.S.A., Portsmouth, Charlestown, Brooklyn, Washington, and Mare Is.; of Italy, Spezia, Naples, and Venice; of Russia, Leningrad, Kronstadt, Sevastopol, and Nikolaiev.

Doctor (Lat., teacher), one who is skilled or learned in any branch of knowledge, or whose attainments entitle him to express an authoritative opinion. As a title or degree it is granted by univs. to those who have attained the highest qualification, and ranks above master; but the ranks vary, thus in divinity, law, music, etc., there are no masters, and the lower degree is bachelor; in other faculties such as arts, there are no Ds. In the fourteenth century the degree of D. was conferred in medicine, and in common parlance a 'D.' means a physician, or, quite generally, a qualified medical practitioner, whether he has taken the degree of D. in Medicine, M.D., or not. The first univ. degree of D. was granted at Bologna in the faculty of law, in the twelfth century. The faculties in which the degree is granted are too numerous to specify, and new faculties with the growth of specialisation tend to spring up. The univs. are accustomed to grant honorary doctorates to members of other univs., and to those who have distinguished themselves in a particular branch of knowledge, or who are prominent generally, such as distinguished statesmen, military and naval officers, scientists, artists, writers, etc. Of these honorary degrees those of D.C.L., Doctor of Civil Law, at Oxford, and LL.D., Doctor of Laws, at Cambridge, are perhaps of the highest distinction.

Doctors' Commons, the name formerly given to a society of ecclesiastical lawyers in London, forming a distinct profession for the practice of civil and canon laws, and also to the buildings erected by them, 1567, on St. Bennet's Hill, St. Paul's Churchyard, under Harvey, Dean of the Arches. The houses (so called from the 'community of board' of members of the college) were destroyed by the Great Fire, 1666, but restored in 1672. Advocates and thirty-four proctors (corresponding to attorneys and solicitors), all Oxford or Cambridge graduates duly admitted by the Archbishop of Canterbury, lived there, headed by a president (Dean of Arches for the time being). Incorporated by Royal Charter, 1763, but on estab. of the Divorce Court and Probate Court, the college was dissolved and the property sold, 1857, the various courts (Court of Arches, of Admiralty, of Delegates, Prerogative, Faculty, and Archdeacon's Court) being now open to the whole Bar. The buildings were demolished in 1867, but the old name still survives. In 1874 the Doctors' Commons Will Office was removed to Somerset House.

Doctrinaire, theorist who pays no regard to practical considerations, generally a political ideologist. The term is of Fr. origin, and was bestowed upon a group of politicians at the time of the Restoration (1815-30), who desired a constitution in France modelled according to historical principles and the monarchical system in England, and were opposed to absolutism

as much as to revolutionary principles. The leaders were Royer-Collard, Guizot, and the Duc de Broglie.

Doctrine, see **DOGMA**.

Dodabetta, highest mt. in Madras, is a peak in the Nilgiri Hills and is 8760 ft. high.

Dodd, Francis (1874-1949), Brit. artist, b. at Holyhead, son of a Wesleyan minister. Received his artistic training at the Glasgow School of Art and in Paris and Italy. A.R.A., 1927; R.A., 1935. A trustee of the National Gallery of Brit. Art (1928-35). As an official war artist he painted a series of portraits, 'Generals of the British Army,' during the First World War. His 'Interrogation of a German Prisoner' is in the Imperial War Museum. Among his best portraits are those of: 'The late Lord Cunliffe' painted for the Bank of England; a lady entitled 'Signora Lotto' purchased by the Manchester Corporation for the City Art Gallery in 1910; a 'Self-Portrait' now at the Fitzwilliam Museum; 'Geoffrey Dawson' former editor of *The Times*, and 'C. P. Scott,' former editor of the *Manchester Guardian*. He is well represented in the Tate Gallery by paintings of 'A Smiling Woman,' bought by the Chantrey Bequest in 1924, and 'Miss Dacre' and also a charcoal drawing of Edward Garnett. He also executed a number of water colours portraying some of the older London suburbs—Blackheath, Brixton and Dulwich. In 1941 an exhibition of his etchings, portrait drawings and oil and water colour paintings was held at the Municipal Art Gallery, Cheltenham.

Dodd, William (1729-77), man of letters, after distinguishing himself at Cambridge, and spending a short time in London as a man about town, took holy orders in 1751. He soon became a popular preacher, and attracted large congregations to the Magdalen House, of which he was chaplain from its inauguration in 1758. In 1763 he was appointed chaplain to the king, and soon after became tutor to Philip Stanhope, godson and heir to Lord Chesterfield. He became a noted person in Metropolitan society, but, living beyond his means, got into such straits that in 1777 he forged a bond for £4200 in the name of Lord Chesterfield. The forgery was discovered, and D. sent for trial, and condemned to death. Much influence was brought to bear upon the king to grant a pardon, but in vain. No less a literary personage than Dr. Johnson exerted himself on the prisoner's behalf. D. was hanged on June 27. Of D.'s many books, that best known is the vol. of selections entitled *The Beauties of Shakespeare* (1752), reprinted many times. Besides some contemporary anonymous memoirs, there is a biography by P. Fitzgerald, *A Famous Forger, being the story of the Unfortunate Dr. Dodd* (1865).

Dodder, name applied to sev. Brit. species of *Cuscuta*, a parasitic genus of Convolvulaceae. The plants twine round the branches of woody or other plants, strike minute suckers in their bark and thus obtain their necessary sustenance.

C. Europaea, the common or greater D., attacks heath, furze, nettles, hops, and other plants. *C. epillinum* is the flax D., *C. trifolii* attacks clover, and *C. epithymum*, the lesser D., takes as host sev. low-growing plants.

Doddington, George Bubb, 1st Baron, Lord Melcombe (1691-1762), son of Jeremiah Bubb, an Irish apothecary. In 1720 he took the name of D. on inheriting a fine estate from his uncle. In 1715 he was elected to Parliament, and was member for Bridgwater (1722-54). He was constantly changing sides, serving in succession Walpole, the Prince of Wales, the Duke of Argyll, and the Prince again. He was a patron of Young and Thomson, and wrote some poems himself, but he is only remembered through his posthumous *Diary* (ed. by H. P. Wyndham, 1784), which reveals the intrigues of his time and his own egotism. He was created Baron Melcombe in 1761.

Doddridge, Philip (1702-51), Eng. dissenting minister and writer. In 1729 D. opened at Northampton an academy for educating Nonconformist ministers. He formed a society for distributing Bibles to the poor, and paved the way for foreign missions among Nonconformists. His chief works are: *The Family Expositor* (1739-56), *Of the Evidences of Christianity* (long used as a text-book at Cambridge, 1743), *Rise and Progress of Religion in the Soul* (1745), *Course of Lectures* (pub. by Clarke, 1763), and hymns. See J. D. Humphreys (ed.) *Correspondence and Diary of P. Doddridge*, 1829-31.

Dodecahedron, in geometry, a solid enclosed by twelve plane faces, each solid angle being formed by three regular pentagons. In crystallography, a regular D. is an impossibility; in the cubic system are the right rhombic D. and the pentagonal D., which has irregular faces.

Dodecanese Islands. A group of 13 (originally only 12 were comprised in the group) It. is. in the Aegean Sea near the coast of Asia Minor. They were occupied by Italy in 1912, recognition of her title being given by Great Britain under the treaty of London in 1915. The is. are Kos, Patmos, Lipso, Kalymnos, Leros, Nisyros, Stampalia, Tilos, Calchi (or Kar-chi), Syme, Astypalaea, Scarpanto (or Karpathos), Kasos and Rhodes. Pop. 80,000. In Sept. 1939, Brit. aircraft and ships bombed and shelled It. bases in the D. Stampalia was bombarded by ships of the Brit. Mediterranean fleet on Oct. 2, 1940. Following Italy's surrender in 1943 Brit. forces struck at the D., occupying Cos, Leros, and Samos and piercing the ring of defences whose bastions were Rhodes and Crete. The is. were returned to Greece after the Second World War and were formerly incorporated in the kingdom in March, 1948. See also **ÆGEAN SEA AND ISLANDS AND ITALIAN FRONT IN SECOND WORLD WAR**.

Dodecatheon, genus of plants belonging to the order Primulaceae. They are hardy perennials, and easily cultivated in gardens with well-drained soil. The flowers, which somewhat resemble cyclamen, are variously coloured. *D. integrifolium* has

clusters of handsome, rosy-crimson flowers, *D. Jeffreyi* is reddish purple, *D. Media* is pale lilac. Various hybrids derived from crossing *D. Media* with other species are popularly grown; of these *D. m. lanceifolium* has large leaves and red flowers with yellow markings. Amer. cowslip is the popular name for the genus.

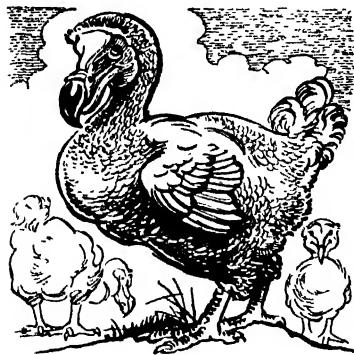
Dodge, Mrs. Mary Elizabeth Mapes (1838-1905), Amer. authoress, b. in New York. For some years she assisted Harriet Beecher Stowe and Donald G. Mitchell in editing *Hearth and Home*. In 1873 she was appointed editress of *St. Nicholas*. Besides numerous contributions to periodicals, she wrote, *Irrington Stories* (1864), *Hans Brinker or the Silver Skates* (1865), *Rhymes and Jingles* (1874), *Theophilus and Others* (1876), *When Life was Young* (1894); and the vols of poems: *Along the Way* (1879), and *Poems and Verses* (1904).

Dodge City, in Kansas, U.S.A., seat of a Ford plant, with railway shops, flour mills, etc. Five m. E. is the State home for disabled volunteer soldiers. Pop. 8400.

Dodgson, Charles Lutwidge, see CARROLL, LEWIS.

Dodman, The, lofty headland of S. Cornwall, England, 8 m. S. of St. Austell. It is now the property of the National Trust.

Dodo, extinct bird, in the family Dididae, next to the pigeon, was last known in 1681 in its living state. The bird was as large as a turkey, of unworldy



build, with short curly tail-feathers and rudimentary wings useless for flight; the bill was blackish in colour, forming at the end a horny hook, and the aborted keel also indicated its flightless condition. *Didus ineptus* was the species in Mauritius, *D. borbonicus* in Réunion.

Dodona (Δωδώνη), anot tn. of Epirus, Greece, near the base of Mt. Tamarus (Tmarus) on Thesprotia's borders (see Strabo vii., Pliny ii.). Said to have been founded by Deucalion (Herodotus ii. 99), it was the seat of the oldest Gk. oracle,

dedicated to Zeus. The oracle divined by the flight of pigeons, dice, the sound of a bronze bason, and the noise of the wind in the sacred oaks where the voice of Zeus was heard in the rustling of the leaves. The temple was destroyed during the war of the Aetolians and the Achaeans 220 B.C. It was rebuilt a little later, and in the second century A.D. games were celebrated there in honour of Zeus Naios. But Christianity soon transformed it into a church, and the bishops of Dodona sat at the Councils of the fifth and sixth centuries, at the end of which it ceased to exist. The remains were unearthed about 11 m. S.W. of Janina. The theatre is well preserved, and many valuable historical inscriptions were found.

Dods, Marcus (1834-1909), Scottish divine and theological scholar. In 1859 he was appointed professor of N.T. Exegesis in New College, Edinburgh, of which he became principal in 1907. Among his most important writings are: *Israel's Iron Age* (1874), *Mohammed, Buddha, and Christ* (1877), *On Genesis* (1882); *The Gospel according to St. John*, in the Expositors' Greek Testament (1897); *The Bible, its Origin and Nature* (1904). He also edited the Eng. trans. of Lange's *Life of Christ* (1864), and *Augustine's Works* (1871-76).

Dodsley, Robert (1703-64), Eng. author and bookseller, was in early life in domestic service as a footman. While so engaged, he wrote occasional verses and received encouragement from his employer, the Hon. Mrs. Lowther, and later the active patronage of Defoe. He pub. *Servitude* (1729), later reissued as *The Footman's Friendly Advice to his Brethren of the Livery* (1731), *A Muse in Livery* (1732), and other vols.; and in 1735 his dramatic satire, *The Toy-Shop*, was staged by Rich at Covent Garden Theatre. In the same year D., with capital supplied by Pope and other persons interested in him, set up as a bookseller at the sign of Talby's Head in Pall Mall. He continued throughout his life to write books and plays, but it is as a bookseller he is now best remembered. His first important venture as a publisher was in 1737 when he issued Pope's *First Epistle of the Second Book of Horace imitated*. In the following year he brought out Dr. Johnson's *London*. In 1759, joined by his younger brother James in the business—he pub. Goldsmith's *Polite Learning*, and in the same year he retired into private life, with an ample competence and a host of friends. It was James D., who, after having refused a first version of *Tristram Shandy*, brought out Sterne's masterpiece, purchasing the copyright of the first two vols. for £250, and of the third and fourth vols. for £380. See R. Straus, *Robert Dodsley, Poet, Publisher and Playwright*.

Dodsworth, Roger (1585-1654), Eng. antiquary. He collected materials for a hist. of Yorkshire and an Eng. baronage, and pub. in collaboration with Sir William Dugdale, a *Monasticon Anglicanum*, 1655 and 1661. The MSS. he left to Lord Fairfax, who bequeathed them to the Bodleian Library at Oxford.

Dodwell, Henry (1642-1711), Eng. theologian and chronologist. In 1688 he was elected Camden prof. of hist. at Oxford, but was deprived of his post on refusing to take the oath of allegiance to William and Mary in 1691. His theological works are of far less value than those on chronology, among which are: *A Discourse Concerning Sanchoniathon's Phœnician History* (1681), *De Veteribus Græcorum Romanorumque Cyclis* (1692), and *Annales Thucydides et Xenophontei* (1702). See F. Brokesby, *Life of Mr. Dodwell with an Account of his Works*, 1715.

Doe, see under **DEER**.

Doe, John, and Roe, Richard, see under **FLECTION**.

Doenyo Egere, see **KENYA, MOUNT**.

Dog, term designating a quadruped of the domesticated variety, *Canis*, which may be extended to include wild Ds., jackals, foxes, wolves, etc.

Origin.—Darwin believed the D. to be descended from two species of wolves, *Canis lupus* and *Canis latrans*, as well as from certain European, Indian, and African canine species, and from the jackal. The arguments in favour of the wolf origin are that the D. and wolf will interbreed with each other, and that the progeny thus obtained will again breed with either the D. or the wolf, whereas most hybrids are not fertile. On the other hand the domesticated D. is in one feature very different from the wild Canidæ. The pupil of its eye is round, whereas in the wolf the pupil is placed obliquely, and in the fox and jackal perpendicularly.

Chief Characteristics.—The dog is digitigrade, fissiped, with slender legs, the fore feet having five toes, the hind feet four, with non-retractile claws. The head is small, the muzzle pointed, but the shape of the head differs greatly in various species. The neck is short and thick-set. The teeth usually consist of six incisors, two canines and eight premolars in all, but the numbers vary. The upper jaw has four molars and the lower has six. The vertebrae of the tail vary in number, and some species have no tails. The tongue is smooth. The mammae are sometimes four, sometimes five on each side. The period of gestation is sixty-three days. There are four to eight, occasionally as many as twenty, pups in a litter. The young are born blind and remain so for about ten days. The average age of a D. is from ten to fourteen years, though some live to be twenty. The D. has a very acute sense of smell, and an extraordinarily keen intelligence. It has probably more highly developed mental qualities than any other animal. By nature it is carnivorous, and in its wild state will combine to hunt out its prey. It will feed on birds or fresh meat; in cold countries it eats fish, and some kinds of Ds. will also eat crabs, reptiles, and insects. The Pariah D. of India feeds on carrion and offal, whereas the Chowchow of China is a strict vegetarian. (See V. W. F. Collier's *Dogs of China and Japan*, 1921.)

History.—The dog was, apparently, the companion of man from the very earliest time. Canine remains have been found in the Dan. kitchen-middens of the Neolithic period side by side with human remains. The Egyptians held Ds. in the greatest affection, almost veneration. The friezes of their temples were carved with figures of Ds., and many very early Egyptian monuments (dating from about 3000 B.C.) are decorated in like manner. The Jews, as we can see from the O. and N.T., regarded Ds. with the utmost contempt, as unclean beasts. This feeling was perhaps the natural outcome of seeing the worship bestowed upon them by the neighbouring tribes of Egyptians and Syrians. Assyrian sculptures represent two forms, a greyhound and a mastiff, whereas the Egyptians represent a wolf-dog, greyhound, turnspit, and a kind of terrier. The Egyptians worshipped Sirius, a star, which they called 'D. Star,' because of its faithfulness in appearing at a certain season to warn them of the approaching overflow of the Nile. The Ethiopians went still further, and elected a D. to be their king, whose growlings or howlings they received as directions of government. The Gks. used Ds. in battle as well as in the chase. 'Ds. of war' had spiked collars, and proved very valiant and dangerous fighters. Oppian, in his *Cynogelata*, is the earliest authority who mentions the use of Ds. for hunting. The Gks. had formerly used nets to ensnare animals, but later pursued their prey with Ds. The Romans divided Ds. into three classifications: (1) *Canes venatici*, or hunting-Ds.; (2) *Canes pastores*, or sheep-Ds.; (3) *Canes villatici*, or watch-Ds. The hunting-Ds. were further divided into *pugnaces*, who attacked the quarry, *nare sagaces*, who tracked it out, and *pedibus celeres*, who overtook it. Early Britain was renowned for its bloodhounds, which, according to Strabo, played an important part in the Gallic wars. During the Middle Ages, Ds. were used in England chiefly in sport. King John had a pack of other hounds. Bull-Ds., then called Butchers' Hounds, were used for catching cattle, and in the popular sport of bull-baiting. Juliana Berners (fifteenth century) made out the following list of domestic Ds.: 'A Grehound, a Bastard, a Mengrel, a Mastif, a Lemor, a Spanyel, a Raches, a Kenettys, a Teroures, a Butchers' Hounds, a Dunghylle Dogges, a Tryndel-taylles, a Pryckeryd Currys, and small Ladyes' Poppees.' Ds. have taken a useful part in exploration, from the time of Columbus' discovery of America (1492) down to the Arctic expeditions of recent years. Among the most famous Ds. in hist. are the bloodhounds who attacked William Wallace of Scotland when fleeing from the English; the mastiffs of the Knights of Rhodes, who could smell out a heathen Turk in whatever disguise; and the D. who woke up William the Silent on the eve of the attack at Mons to warn him of approaching danger.

Dogs in literature.—Ds. are present in the mythology and folklore of the earliest peoples. In this connection should be

mentioned Fingal's favoured companions, Bran and Luath; Cavall, 'King Arthur's hound of deepest mouth,' and Hodain, of the Tristrem and Ysolt story. In Gk. mythology we have Argus in the *Odyssey*, Ulysses' faithful D., who recognised his master after an absence of twenty years. Such another D. was Mæra, who, by his prolonged howling, directed Erigone to the spot where her father, Icarus, had been murdered. Mæra was placed among the stars by Zeus, where he was known as Procyon ('little dog') or *Icarus Canis*. Another faithful D. in story is the Dog of the Seven Sleepers, who accompanied his masters to the cave in which they were confined, and stood on guard by their side for 300 years, without moving, eating, drinking, or sleeping. Mohammed admitted him into paradise under the name of Katmir. In folk-lore Ds. have often been credited with mysterious knowledge of spiritual things, and have sometimes been uncanny friends of such a magician as Cornelius Agrippa. It was a rabbinical superstition that Ds. howl at death. They were, too, depicted as terrible monsters, such as the snarling, many-headed Cerberus, who guarded the entrance to Hades on the further side of the Styx. Among the Ds. noted in Eng. literature are Pope's Bounce, Byron's Boatswain, Scott's Maida, Dandie Dinmont in *Guy Mannering*, Mrs. Browning's Flush, John Brown's Rab and his Friends, Gelder, the dog of Llewellyn. (Consult 'The Dog in History and Folk-lore' in J. J. King's *Sketches and Studies, Descriptive and Historical*, 1871.)

Uses of Dogs.—The earliest races made a friend and companion of the D. No other animal shows such affection and gives such faithful service. Ds. have been and are used in the hunt, for coursing, and retrieving game. They are also valuable for collecting sheep and keeping the flock together, and are useful guards and watchers to keep off thieves. In the Arctic regions Ds. drag sleighs and other vehicles across the snow. They have frequently saved people from drowning, and from suffocation in snowdrifts. Barry, the famous St. Bernard, saved forty lives. Ds. are also employed as messengers, and for tracking criminals, for scouting, for ambulance work, and leading blind persons.

Classification.—The various breeds of Ds. have increased greatly since the early part of the nineteenth century, owing to careful breeding—by crossing, selecting, and interbreeding, new varieties can be 'manufactured.' Many classifications have been made of Ds., though there is no generally accepted one. Cuvier recognised three main divisions—Mâtins, Spaniels, and Hound-dogs. Youatt enlarged this arrangement as follows: 1. Those with more or less elongated heads, with parietal bones widest at the base of the skull, gradually approaching each other as they ascend, and with the condyles of the lower jaw on a line with the upper molar teeth, e.g. the Irish Wolfhound, Greyhound, etc. 2. Those with heads moderately elongated, and with the

parietals diverging as they ascend thus enlarging the cerebral cavity, e.g. the St. Bernard, Newfoundland, Sheep-D., Spaniel, Setter, etc. 3. Those with more or less shortened muzzles, large frontal sinews, and elevated and diminished cranium, e.g. the Terrier, Bull-D., and many toy Ds. Fitzinger divided Ds. into 180 different classes. A very practical classification is that of Rawdon B. Lee (in *Modern Dogs*, 1897), into sporting and non-sporting Ds. These two great divisions have been defined by F. C. S. Pearce in the *Kennel Club Stud Book* (1874), and were defined in further detail by that club in 1900, so that there might be no misunderstanding on the part of intending exhibitors. Gun-Ds. and terriers are included in the classification of sporting breeds, and toys under non-sporting.

Breeds of Dogs.—The Kennel Club has registered 92 different varieties of Ds. But, with the free interbreeding of various types, many intermediate species occur, which account for the 185 types differentiated by naturalists. Numerous foreign Ds. have been imported into the United Kingdom, the Dachshund, the Schweisshund, and a breed of Mastiff, from Germany; the Chesapeake Bay D., and the Boston Terrier from America; the Chow from China; the Japanese Spaniel from Japan; the Poodle from France, and many others. These, and Brit. Ds. are dealt with in separate articles.

Wild dogs.—Among the wild Ds. may be included the Wolf (*Canis lupus*), the Fox (*genus Vulpes*), and the Jackal (*Canis anthus*, *Canis aureus*, etc.), which are considered in special articles. Other wild Ds. may be divided into four groups, African, Amer., Asiatic, and Australian.

(1) *African wild dogs.*—Two types of wild D. occur in S. Africa. The Hyæna D. (*Canis or Lycaon pictus*), or Cape Hunting D., is about the size of a wolf, and varies in colour, generally having large, irregular patches of black, yellow, and white. It is found in the region of the Cape and through the eastern belt of Africa as far as Kordofan. It runs in packs, and is semi-nocturnal, semi-diurnal. It is very swift-footed, and has three different and most curious cries. The Long-eared Cape D. or Fox (*Otocyon*, or *Alagalotis lalandii*), stands about as high as a fox, and has a bushy tail about 2 ft. long. Its ears are very large and quite out of proportion to its head; they are held very erect. It has six more teeth than has the average D.

(2) *American wild dogs* include the Canasassi, or Crab-eating D. (*Canis cancrivorus*) found in a region of S. America, extending from Orinoco to La Plata; the Bush D. (*Ichthyon Venaticus*), found in Brazil and British Guiana; it is short-limbed, and varies in colour from red round the head and shoulders to black in its hind-quarters; the *Canis Azarae* found in the region of the Andes; it is a solitary animal, which comes out at night to seek its prey, in colour, yellowish, or reddish-brown verging to black.

(3) *Asiatic wild dogs.*—The Pariah D. is

very common in the E. where it moves about in bands, acting as scavenger and feeding on offal. The Dhole, also called Kolsun, and Buansuh (*Canis dukhunensis*, *Canis Primoris*, *Canis rutilans*) is found in various parts of India. It is rather larger than the jackal, and has a full, rather long tail. It hunts in packs of about fifty, and is absolutely fearless in attack. Its habits are nocturnal, and it has a very keen scent. A similar kind of D. (*Canis Alpinus*) is found in the Himalayas and in parts of Tibet and Siberia. In general, the Dhole is untamable, though it has sometimes been employed for coursing and pig-sticking. The Raccoon D. (*Canis procyonoides*) occurs in N. China and Japan. It is so called (first by St. G. Mivart), because of its resemblance to the raccoon. It has a pointed muzzle, a short and bushy tail, and short, round ears. Its body is arched and its legs stumpy. Its coat becomes thicker and longer in winter, and in colour is yellowish and brown.

(4) *Australian wild dog*, or *Dingo* (*Canis dingo q.v.*), is the only higher mammal found in that country.

Wild Ds. can be and often have been tamed. In their natural state they hold ears and tail erect and do not bark. When tamed, they will fawn, crouch, wag their tails, and lavish affection upon the master in the manner of an ordinary domesticated D.

Inseases of dogs.—*Distemper* is an infectious catarrh of the mucous membranes in the eyes and nose. It generally occurs in Ds. between the ages of one and two years, but may attack a D. at any age. The first signs are feverishness, loss of appetite and depression. Complications may ensue and the skin is sometimes attacked. Nourishing food, such as gruel, milk, beef-tea, eggs, minced meat, etc., and careful nursing in a warm room are essential. The eyes should be frequently bathed in a solution of boracic acid, creolin and water. *Rabies* (hydrophobia) is contagious and may be transmitted by means of a bite. The disease has often been prevented from spreading by muzzling every D. within a certain area, and is fortunately unknown in the United Kingdom. The symptoms, however, are set forth on the reverse of every licence form issued. *Mange* may be common (or sarcoptic), or follicular. The former is very contagious, and is caused by a parasite which spreads generally, the D. giving off an offensive odour. It is treated with sulphur ointment to the bare patches the remainder of the coat being dusted with flowers of sulphur. Follicular mange does not spread so rapidly, the parasite burrowing under the skin. The D. is irritable and restless but does not scratch. It is treated by washing with sulphur soap, but in severe cases it may be necessary to shave the animal to expedite the cure. *Eczema*, also known as surfeit, or blotch, is a non-contagious skin eruption usually caused by irregular and unwise over-feeding, unclean conditions, or lack of exercise. The best treatment is to change the diet to a rational one, to keep

the D. very clean and give it plenty of fresh air and exercise. Medicine must frequently be given internally, and the affected parts should be dressed. In all cases of serious canine illnesses a veterinary surgeon should be consulted.

Law as to dogs.—In the United Kingdom no person may keep a D., over six months old, without a licence. The licence is obtainable at any post office, costing 7s. 6d., and must be renewed annually. Ds. used solely for tending sheep and cattle, and for leading the blind, may be kept without a licence, certificates of exemption being obtainable from the commissioners of Inland Revenue. Any one found keeping a dog, not under these heads of exemption, without a licence, is liable to a penalty of £5. If a D. bites or attacks a person, on its second offence the owner is liable to an action for damages. The court may decide that such a D. should be killed. Dog-stealing, setting traps for Ds., injuring or killing Ds., etc., are offences punishable under criminal law statutes. Stray Ds., if not taken into homes for the purpose, may be adopted or sold, or killed by members of the police force. The accidental killing of a dog on the roads must be reported to the police. Consult F. Lupton, *The Law Relating to Dogs*, 1888.

Glossary of technical terms.—*Apple Head*, a head rounded on top; *blaze*, a white mark or streak on the head; *blue*, applied to shades of grey; *brisket*, the front of the chest; *brush*, the tail—usually applied to collies or sheep-Ds.; *butterfly nose*, a spotted nose; *button ear*, where the tips of the ears fall over, covering the orifice; *cat foot*, a rounded, high-knuckled foot; *chops*, the pendulous underlip of a bull-D.; *cloudy*, stoutly built; *cobby*, compactly built; *couplings*, the part of the body between the shoulder blades and the hip joints; *cow hocks*, hocks that turn in; *dew claw*, extra claw; *develap*, loose hanging skin under the throat; *dish-faced*, when the nose is turned up and higher than the muzzle at the stop; *dudley nose*, a yellowish nose; *feather*, the hair on the legs and tail; *flag*, the tail, usually of a setter; *flews*, the hanging lips of a bloodhound and of some other breeds; *forearm*, the part of the foreleg that extends from the elbow to pastern; *frill*, long hair on the chest; *hare foot*, a long narrow foot, carried forward; *haw*, the red inside eyelid, showing in St. Bernards and bloodhounds; *hucklebones*, the tops of the hip joints; *leather*, the skin of the ear; *occiput*, the bony lump at the back of the head; *overshot*, the upper teeth projecting beyond the lower; *pastern*, the part of the leg below the knee; *pig eye*, small, sunken eye; *pig jaw*, an exaggeration of overshot; *pily*, applied to a soft, woolly coat; *roach back*, an arched back; *rose ear*, where the tips turn back, showing the interior of the ear; *septum*, the division between the nostrils; *snipy*, with a too pointed muzzle; *stiles*, the top joints of the hind legs; *stop*, the indentation below the eyes; *tupit ear*, an erect ear; *undershot*, the lower teeth projecting beyond the upper.

Dog shows and clubs.—The first club in England was formed by Lord Orford in 1776, at Marham Smeeth, near Swaffham. Though coursing meetings have been held since the time of Charles I., the first actual show took place in 1859 at Newcastle-on-Tyne, under the patronage of Mr. Pape and Mr. Shorthose. Sixty Ds. were exhibited, and the show was so popular that others were held in the same year at Birmingham and Edinburgh. Now that D.-breeding has become a lucrative business as many as 500 shows have been held in the United Kingdom in one year. The Kennel Club was founded in 1873 by S. E. Shirley, who held the position of president till his death in 1901. This club has had an enormous influence in improving the condition of various breeds, and in promoting the welfare of Ds. in general. It has been instrumental in putting a stop to cropping of ears (1889), to mutilating the membrane of the mouth, and in some cases to docking the tail. It controls the different shows, and practically rules the canine world. It defines the recognised breeds, and maintains a Breed register. Its own show was held in October at the Crystal Palace until that place was burned down in 1936, while another famous Dog Show—Crufts's—is held annually at the Agricultural Hall, London. Other well-known clubs are the Ladies' Kennel Association, and the Westminster Kennel Club. Most breeds of Ds. have their own particular club, such as the London Bulldog Society, the Dandie Dimont Terrier Club, the Gamekeepers' Association of the United Kingdom, the Pomeranian Club, etc. The chief foreign and colonial clubs are La Société Centrale (Paris), The Italian Kennel Club, The American Kennel Club, and the South African Kennel Club. A D. is valued by its points, so many marks being assigned to each. For example, a bloodhound is valued thus: Head, 20; ears and eyes, 15; legs and feet, 15; back and ribs, 10; chest and shoulders, 10; colour and coat, 7½; symmetry, 7½; flews, 5; neck, 5; stern, 5; tail, 100. Ds. vary considerably in price, as much as £1500 having been paid for a collie, and 1000 guineas for a bulldog. A fox terrier has more than once fetched 500 guineas, and a pointer 200. Ladies' toy Ds. may be of great value, and have been sold for their weight in gold.

Books on dogs.—GENERAL AND HISTORICAL: J. J. King, *Sketches and Studies, Descriptive and Historical*, 1874; R. B. Lee, *Modern Dogs*, 1897; H. Compton, *The Twentieth Century Dog*, 1904; A. J. Dawson, *Everybody's Dog Book*, 1922; W. H. Miller, *The American Hunting Dog*, 1926; E. F. English, *The Dog Owner's Guide*, 1933, 1938; C. G. Trew, *The Story of the Dog and his Uses to Mankind*, 1910; C. L. B. Hubbard, *The Observer's Book of Dogs*, 1945; and *Working Dogs of the World*, 1947; B. Vesey Fitzgerald (ed.), *The Book of the Dog*, 1948. BREEDING: F. Mayhew, A. J. Sewell, and F. W. Cousins, *Dogs and their Management*, 1910, 1934; R. Leighton, *The Complete Book of the Dog*, 1922, 1927; O. E. M.

Hollyer, *Dog-Keeping and Breeding*, 1926. SICKNESS: J. W. Hill, *Management and Diseases of the Dog*, 1900; L. Sewell, *Canine Distemper*, 1925; O. E. M. Hollyer, *Dog Ailments*, 1927; A. J. Sewell, *The Dog's Medicine Dictionary*, 1932; M. H. Clark, *First Aid to Dogs and Cats*, 1941.

Journals: Weekly, *The Field*, 1853; *Our Dogs*, 1895; and *The Dog World*, 1919. Monthly, *The Kennel Gazette*, 1880, and *Dogs*, 1916.

Dogbane, or *Apocynum*, the name of a genus of Apocynaceae which includes only three species. *A. cannabinum*, the Canadian hemp, and *A. androsamifolium*, or fly-trap, both grow in N. America, and are used in medicine.

Dog-days (*Dies Caniculares*), the hottest period of the year, generally reckoned now from July 3 to Aug. 11. Various dates, from July 3 to Aug. 15, were assigned for the first of the D. by the Gks. and Romans, and various periods of duration from twenty to fifty-four days. They were generally associated with the influence of Sirius, 'the dog-star,' and according to Pliny, began with its heliacal rising on July 19 (New Style). They were regarded by the ancients as the hottest and most unhealthy period of the year, and as being the direct cause of madness among dogs.

Doge (Lat. *dux*, leader), former title of the chief magistrate of Venice and Genoa; the first Venetian D., Paolo Lucio Anafesto, being elected A.D. 697 to replace the former seven tribunes. At first their powers were largely undefined; their attempts to make the office hereditary were checked (1032) by a declaration that the election of a D. Consort (son with father) was illegal. The privy councillors (*consiglieri ducali*) were appointed instead. In 1172 the Great Council of 470 members was formed as a check on the Ds. Sebastian Ziani, the first D. chosen from the candidates of this council, introduced the custom of wedding the Adriatic with a ring thrown from the ship *Bucentaur*. The office disappeared on the fall of the Venetian republic (1797). The Ds. of Genoa dated only from 1339. In 1528 restrictions were made on their power; in 1797, on Fr. occupation of Genoa, the office disappeared, and after a short restoration vanished for good in 1804. In Amalfi Ds. existed from 897-1350. The Ds. palace (Palazzo Ducale) at Venice is a Gothic building of the fourteenth and fifteenth centuries, and was a residence of the councillors and Ds. See P. Molmenti, *La dogaressa di Venezia*, 1884. (See illustration, p. 718.)

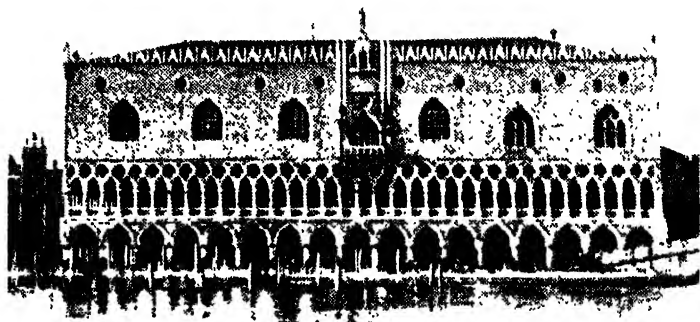
Dog-fish, name given to any member of the Scyllidae, a family of Elasmobranchs in the division Selachii. The species are marine, living in warm seas, and many fossil forms are found in the Jurassic and Cretaceous. There are two small spineless dorsal fins, a distinct spiracle, no nictitating membrane; the mouth is inferior, and the teeth are small. The females are oviparous and the egg cases are four-sided and large; in habit the fishes are predaceous. *Scyllium canicula* and

Sc. catulus, the small-spotted and large-spotted dog, are Brit. species of small size; *Stegostoma tigrinum*, the tiger-shark, attains a length of 15 ft. in the Indian Ocean *Pseudotriakis microdon* is a large shark found off the coast of N. America.

Dogger (Dutch *dogger*, codfish boat), vessel something like ketch, with two masts, and of about 80 tons burden, used in the cod and herring fisheries in the N. Sea.

Dogger Bank, extensive sandbank in the N. Sea, 50 m. from the nearest point on the Eng. coast. The average depth of the water above it is from 10 to 20 fathoms, but in some places there is only a depth of 6 fathoms. It is about 170 m.

London, 1691. He was highly thought of, both for his acting and his personal character, and was associated with Cibber and others in the management of Drury Lane and the Haymarket. He is chiefly remembered, however, as the founder of the prize of 'D.'s Coat and Badge' in 1713, in honour of King George I.'s accession. The prize consisted of a red coat with a large silver badge on the arm, and was competed for by Thames watermen who had completed their apprenticeship within the twelve months prior to the race. The race took place on Aug. 1, and the course was from London Bridge to Chelsea. Money was left to continue the prize, and the race is still held annually



THE DOGE'S PALACE, VENICE

Canadian Pacific

long by 65 m. broad, and is a famous fishing ground, probably obtaining its name from the Dutch *dogger*, a codfish boat. In 1781 the S. end of the bank was the scene of an indecisive battle between the Eng. and Dutch fleets under Admirals Hyde Parker and Zoutman. In 1904, during the Russo-Japanese War, a Russian fleet fired on the trawlers on the D. B. The excuse given was that there were Japanese torpedo boats among the trawlers. After protest lodged, a commission was appointed, which ordered Russia to pay compensation to the families of the victims. In the First World War the Battle of Dogger Bank was fought on Jan. 24, 1915, between Brit. and Ger. fleets, the former under the command of Admiral Sir David (later Earl) Beatty and the latter under Admiral Hipper. As soon as Hipper saw Beatty's fleet he made for Heligoland and the battle developed into a chase. The Ger. warship *Blücher* was hit very early in the action and sank. The *Seydlitz* and *Derfflinger* were also badly hit. The result of the fight was to impose the greatest caution on the Ger. naval authorities. See also HELIGOLAND BIGHT.

Doggett, Thomas (d. 1721), Eng. actor, b. in Dublin, who made his first appearance in D'Urfey's *Love for Money* in

under modified conditions. A list of the winners has been kept since 1791.

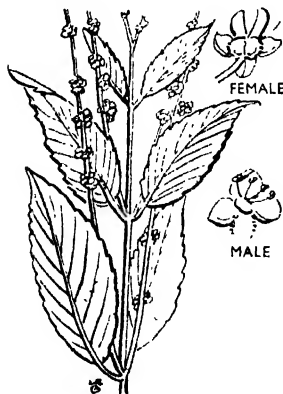
Dog Licence, see under DOG.

Dogma (Gk. *dogma*, from *dokein*, to seem good or true), a term which has passed through many meanings, and is now chiefly used in theology. The D. of a Gk. assembly was merely its decree, or that which seemed right and proper. Originally an opinion stated as a positive assertion, the truth of which had already been proved, it came to be applied to a belief derived from authority, and especially to doctrines of the church, concerning which no questioning was allowed. From meaning the essential doctrines of Christianity as contained in the Scriptures or writings of the fathers, it came to be considered as equivalent to 'assertion without proof' in English. In its continental use (Ger. *Dogmen*) it means 'doctrine,' with no censure implied, the science of Ds. having a separate professorship in the Protestant univs. of Germany. See C. G. A. Har-nack, *History of Dogma* (trans.), 1895-96; R. Seeberg, *Lehrbuch der Dogmen-geschichte*, 1895-1920; J. Tixeront, *Histoire des dogmes*, 1912-14.

Dogmatic Theology, the systematic statement of Christian doctrine, considering each article of faith in connection with others with which it is in apparent

relation. It deals, that is to say, with the actual abstract deposit of faith, and not with its relation to, and effect on, the life of the believer. Neither does it deal with doctrine from the point of view of history and development. The term is now of general use, though it did not become so until the seventeenth century. Previous titles for the subject among Protestant divines are *Thetic Theology* and *Positive Theology*. The earliest period of Christian doctrinal statement, comprised almost entirely of apologetics, may be said to end with Origen, who sketched out the main plan of the science. In the seventh century, it was brought to the highest level it has attained among the Gks. by John Damascene, and in the Middle Ages it developed greatly in the West. Important names are those of Anselm, Duns Scotus, and Thomas Aquinas. The period immediately following the Reformation produced many volumes of Protestant D. T., but thereafter Protestants showed themselves averse from D. T. until recent times when interest in the subject has been revived by the writings of Bishop Gore, A. Schweitzer (q.v.) and Karl Barth (q.v.). See J. H. Newman, *An Essay on the Development of Christian Doctrine*, 1845; W. G. T. Shedd, *History of Christian Doctrine*, 1881; A. Leclerc (trans. by Leigh Hunt), *An Introduction to Reformed Dogmatic* (1870), 1948.

Dogs, Isle of, Poplar Marshes, or Mill-wall, is situated on the l. b. of the R. Thames, England, opposite Greenwich. It has been suggested that the name received its origin from the lodging there of the king's hounds. The district is occupied largely by the W. India Docks.



DOG'S MERCURY

Dog's Mercury (*Mercurialis perennis*), weed of the Spurge family, (Euphorbiaceae), with creeping root-stock and erect unbranched stem bearing male and female flowers on separate plants. Although poisonous it was formerly used in medicine.

Dog's-tail Grass, or *Cynosurus*, genus of Gramineae which is represented in Britain by two species. *C. cristatus*, the crested D. G. or goldseed, is valued as a pasture-grass on account of the fineness and closeness of its herbage.

Dogstar, see *SIRIUS*.

Dog's-tooth Violet, or *Erythronium dens canis*, a species of Liliaceae which grows in a mild climate, and in Britain is often used for borders. The bulb has a toothed appearance, and the flowers are violet-colored; hence the name of the plant.

Dogtooth Ornament, in architecture, a moulding much used in medieval building from Late Norman to Early Decorated, and cut in projecting teeth. It is thought that it was introduced from the E. by the Crusaders; it first appeared in Europe about 1100. In later architecture the 'dogtooth' frequently becomes a four-leaved flower with the centre projecting, e.g. in Elgin Cathedral.

Dog-watch, nautical term. The first D. is from 4 p.m. to 6 p.m., and the second from 6 p.m. to 8 p.m. See *WATCH*.

Dog-whelk, popular name of *Nassa reticulata*, a Brit. gastropod mollusc; it is also applied to the near species of *Purpura lapillus*, the dog-periwinkle.

Dogwood, common name for the deciduous shrubs of the genus *Cornaceae*. The common D. (*Cornus sanguinea*) is familiar in Britain and has dark-red branches, pointed oval leaves and small purple berries. Yield a hard useful wood. *C. succinea* is a Scotch species. Some species produce a red dye.

Doherty, Reginald Frank (1874-1910) and **Hugh Lawrence** (1876-1919), lawn-tennis champions, sons of Wm. D., were b. in London—R. F., Oct. 16, 1874; H. L., Oct. 8, 1876. For ten years, 1897-1906, they were, successively in singles, and jointly in doubles, supreme. They were defeated by Smith and Riseley at Wimbledon in 1906.

Dohrn, Felix Anton (1840-1908), Ger. zoologist, b. at Stettin. In 1870 he founded the great zoological station at Naples, which within ten years became one of the most noted schools and laboratories of natural science in the world, and was the model for many later ones. D.'s early studies were almost entirely concerned with insects, and his later with marine invertebrates. He produced many valuable natural science works, including *Ursprung der Wirbeltiere* (1875), *Studien zur Urgeschichte des Wirbeltierkörpers* (1882), and *Die Pantopoten des Gulfs von Neapel* (1881).

Doiran, Battle of. One of the surprises of the 1914-18 War was the Allied offensive on the Macedonian front in Sept. 1918. The new allied Commander-in-Chief, the Fr. General d'Esperey (q.v.) planned this attack immediately he assumed command. The Bulgarian army occupied strong positions on the heights to the west of Lake Doiran, from which they dominated their opponents. After a preparatory bombardment the Brit. forces attacked the 'P' Ridge on Sept. 18, whilst Gk. troops attacked Doiran Hill.

After severe fighting General Sir George Milne, commanding the Brit. and Gk. forces, gained Petite Couronne, Dolran tn., and the lower slopes of Grande Couronne. On Sept. 21, on the Vardar front the Franco-Serbian offensive had reached the line Gradista-Boshava-Drugoil and the heights of Porta dominating the Varda, thus turning the flank of the enemy on the Brit. front and cutting his communications. This forced the Bulgarians to retreat on the Dolran front. By Sept. 22 the Bulgarians were in full retreat in great disorder on a front of 100 m. This collapse of Bulgaria exposed Turkey to attack on its W. flank and compelled it to cease offensive operations. The remaining forces of the Central Powers were now exposed to attack from the East, a factor which contributed to their decision to conclude an armistice.

Doisig, tn. and com. of Rumania, about 22 m. S.E. of Dobreszen. Pop. 8000.

Doit, or **Duyt**, small Dutch copper coin, in value equal to half an Eng. farthing. It was also a small copper coin, equal to one Scots penny, or one twelfth of an Eng. penny, current in Scotland in the time of the Stuarts.

Dolabella, Publius Cornelius, Rom. general and the husband of Cicero's daughter, Tullia; b. about 70 B.C., and one of the most notorious profligates of his age. He took the side of Caesar in the civil wars, and fought for him at Pharsalia, and accompanied him to Africa and Spain. On Caesar's death (44 B.C.) he seized the consulship and allied himself with Brutus and the conspirators, until he changed sides again when Antony offered him a higher bribe, the province of Syria. On his way there he plundered various cities in Greece and Asia, and murdered C. Trebonius, the proconsul of Asia, who refused to allow him to enter Smyrna. Cassius was sent to supersede him, and besieged him in Laodicea. To avoid capture D. ordered one of his soldiers to kill him (43). *See Cicero's Letters.*

Dola Sequanorum, *see* **DOLÉ**.

Dolce, **Lodovico** (1508-68), It. author and scholar, b. at Venice of a noble family. The circumstances of his life are not known, but he lived at Venice for the greater part, and it is believed in a state of poverty. His work consisted chiefly of trans. from the classics and of plays based on the classics. Of his trans. the chief were Homer's *Odyssey*, *The Battle of the Frogs and Mice*, Virgil and Ovid, and a Sp. trans. of Ariosto. He wrote four tragedies from Euripides, two from Seneca, and comedies from Plautus; and he also ed. the works of Petrarch, Boccaccio, and Dante.

Dolci (**Dolce**), **Carlo**, or **Carlinio** (1616-86), Florentine painter chiefly of religious subjects, pupil of Jacopo Vignali. He painted also portraits of the Imperial family at the Emperor's court. Among his best works are: 'Christ on Mount Olivet'; 'Holy Family'; 'Madonna and Child' (Pitti Gallery, Florence); 'St. John the Evangelist' (Berlin Gallery); 'Poetry', and 'St. Apollonia' (Corsini Palace, Rome); 'St. Cecilia', and 'The

Daughter of Herodias' (Dresden); 'St. Andrew' (Pitti Palace); 'Ecce Homo' (Munich); 'Adoration of the Magi' (Glasgow); 'La Madonna collo Stello'; 'Penitent Magdalen' (Munich); 'St. Veronica' (Dulwich); his own portrait (1674, Uffizi, Florence); portrait of Cardinal Ghisi (Alexander VII.). *See* life by C. Hay, 1908.

Dolcigno, *see* **DULCIGNO**.

Dol-de-Bretagne, Fr. tn. in dept. of Ile-et-Vilaine, 14 m. from St. Malo. The level, fertile dist., Marais de Dol, is protected from the sea's inundations by a dyke, 22 m. long, built in the twelfth century. D. has a fine thirteenth century cathedral of granite, with good glass, sculptures, and two fine porches. In 1793 the Vendéens defeated the republicans here. Pop. 4400.

Doldrums, regions of almost permanent calm situated in equatorial seas. They follow the sun's annual changes of declination but to a smaller degree, being never more than 5° N. or S. of their mean positions. *see* **WIND**.

Dole. A colloquial rather than official term which came into general use in Great Britain during the years that followed the end of the First World War. It denoted the out-of-work donation from 1919 paid to ex-service workers. This allowance varied from 20s. to 29s. for men and from 15s. to 25s. for women. In 1920, the difficulty and cost of having two separate systems of allowances for unemployment in operation side by side led to a new Act, which repealed all previous legislation and placed all unemployed persons on the same level. *See further under* **NATIONAL INSURANCE**.

Dole, Fr. tn., cap. of arron. in the dept. of Jura, on R. Doubs, 30 m. from Dijon. Anciently Dola Sequanorum, it faces the heights of the forest of Chaux, on a vine-clad slope. The Gothic church Notre-Dame belongs to the sixteenth century, and contains a beautiful chapel. In the seventeenth century was built the façade of the Jesuit church, now a chapel of the public college, and the Hôtel-Dieu with its watch-towers. There are iron and copper foundries; and the dist. has given its name to a semi-heavy red wine produced in D. and elsewhere. D. belonged to the Duchy of Burgundy until 1479, when Louis XI.'s army took it and burned it. Later through the marriage of Marie of Burgundy to the Archduke Maximilian it became an Austrian possession, but after being taken by Louis XIV. in 1668 and 1674, it was ceded to France in 1678 by the Treaty of Nimeguen. The winding streets are still lined with old houses built in the style of the Span. renaissance. It was the bp. of Pasteur. Pop. 18,200.

Dolerite, coarse-grained basaltic rock used for road mending and kerbstones. It consists of augite and plagioclase feldspar with the addition of olivine in some varieties, and of quartz in others. Variable quantities of hornblende, apatite, and biotite are often present.

Dolet, **Etienne** (1509-46), Fr. scholar of the Renaissance, b. at Orleans. He set up a printing-press in 1542, and was on

several occasions arrested for publishing heretical works. In 1544 he was imprisoned on a charge of heresy and was burned in the Place Maubert, 1546. See lives by Christle, 1880; Galtier, 1908; and Chassaingne, 1931.

Dolgelly, urban dist. of N. Wales, and the cap. of Merionethshire. It is situated at the base of Cader Idris, on the Aran and Wnion, 230 m. from London. In the neighbourhood is the Parliament House, in which it is said Owen Glendower held a parliament in 1404. *Dolgelly beds* are a series of rocks of the Upper Cambrian system well exposed near D. and Blaenau Ffestiniog and consisting of slates and shales containing characteristic trilobites. Pop. 2200.

Dolgorouki, Catherine Michailowna, Princess, the favourite of Alexander II., Emperor of Russia, to whom she was married (1880), after the death of his first wife Marie. She had been maid of honour to the empress from 1867-73. After her husband's death she went abroad, and at Geneva, in 1882 pub. *Alexandre II.; Détails inédits sur sa Vie intime et sa Mort*, under the name of 'Victor Laferté.'

Dolichocephalic, see under ANTHROPOLOGY.

Dolina, tn. in the Ukraine, formerly in Poland, possessing salt springs. Pop. 8000.

Doll, figure in the shape of a human being, used as a child's toy. Various derivations have been suggested of which 'idol' is the most probable. Others are *Norse daut*, woman, and the name 'Dorothy.' Ds. date from very ant. times, and were common in Egypt, Greece, and Rome. Early primitive people delighted in rude images carved out of wood or bone. To the negro a D. has a magical significance, and may be regarded variously as a mascot, a votive offering, or an idol. Wooden Ds. were introduced into England from the Netherlands, and were called 'Flanders babies,' or simply 'children's babies.' Since then the manu. of Ds. has greatly advanced, and the stiff wooden D. has been superseded by the stuffed sawdust D., with composition or wax head. Its features became more and more realistic. Hair was substituted for painted ringlets, joints were made; wire mechanism was introduced so that the D. could be made to close its eyes and utter sounds. See Lesley Gordon, *A Pageant of Dolls*, 1918.

Dollar, tn. in Clackmannanshire, Scotland, 6 m. N.E. of Alloa. It has an academy, founded in 1818, and endowed by Captain John McNab (1732-1802). It has a bleaching industry. An object of interest is the ruin of Castle Campbell. Pop. 1500.

Dollar (derived from the Ger. *thaler*), applied especially to the unit of the monetary system of the U.S.A. and Canada. Brought into common use in America about 1794. Since the Act of 1837, the silver coin has contained 371.25 grains of silver, 41.25 of alloy, total weight being 412.5 grains. Before this time the weight was 416 grains. Under the Act of 1873 trade Ds. of 420 grains (378 grains silver, 42 alloy) were coined

for the purpose of export to China and other Asiatic regions, not legal tender at home. There are paper as well as silver Ds. The D. mark \$ is written before the number, a sign whose derivation is much disputed. A D. contains 100 cents (approximately 5s.). Silver half and quarter Ds., and dimes (10 cents), are also issued; nickel half-dimes and copper cents. A gold coin of similar value (25.8 grains in weight; 23.22 grains of gold, 2.58 of alloy) was used from 1849-90. Though declared the standard of value in the U.S.A. in 1900, no fresh coins have been issued. The Brit. double florin (first struck 1887, now obsolete) about equalled a D. By 1600 the word was common in England for the Ger. thaler, a silver coin of varying value, current from the sixteenth century, and was especially used later for that worth, 3 marks (2s. 11d.). Sometimes used roughly as a slang term for crown (5s.). The par value of the currencies of member nations of the International Monetary Fund have been announced, since 1946, in terms of gold as a common denominator or in terms of the U.S. D. of the weight and fineness in effect on July 1, 1944.

Dollar Diplomacy, in Amer. politics a term specially associated with the Taft administration 1908-13. It means a systematic effort by the State Department to help Amer. capital to flow into areas abroad which it would not otherwise enter. Taft and his secretary of state, Philander C. Knox, pursued the D. D. most actively in the Far E., their chief motive being to promote trade and safe capital investment, their minor motive being to strengthen Chinese political integrity. In Theodore Roosevelt's administration, the Amer. consul-general at Mukden, apprehensive of Jap. penetration, came to the conclusion that if America put more money into the Far E. she could the more easily maintain the policy of the Open Door. The economic motive was also dominant in the application of D. D. to Central America, though a political purpose, the safeguarding of the Panama canal route, was also served. Knox thought that if Amer. capital flowed into Nicaragua and Honduras through Amer. bankers, traders, and railroad builders that would offset any possibility of European interference on the plea of economic depression and financial instability. When Woodrow Wilson became president (1913) he explicitly repudiated 'D. D.'. He himself, however, maintained it both in China and Nicaragua, co-operating with the bankers; but it has been generally condemned from his time and since the 1914-18 War is no more than a memory. Consult A. Nevins, *America in World Affairs*, 1942.

Dollfuss, Engelbert (1892-1934), Austrian chancellor, see under AUSTRIA—History.

Döllinger, Johann Joseph Ignaz von (1799-1890), eminent Ger. Catholic theologian, at Bamberg in Bavaria. He was educated at the gymnasium and univ. at Würzburg, and in 1822 was ordained priest. After lecturing for three years in

the Lyceum at Aschaffenburg (1823-26), D. was appointed to the chair of ecclcs. hist. and law at Munich. It has generally been assumed that during the early part of his career he was an ardent champion of Ultramontaniam in Germany, though even as a young man his views were by no means narrow. He was a friend of the leaders of the Oxford Tractarian movement—Pusey, Hope Scott, Manning, and others—and wrote vehemently against Protestantism in *Die Reformation* (1846), and *Luther* (1851). His visit to Rome (1857) worked a great alteration in his opinions. In 1861 he delivered certain lectures at Munich in which he declared his belief that the progress of the Rom. Catholic Church did not depend on the temporal sovereignty of the pope. He answered his assailants in *Kirche und Kirchen* (1861), and *Die Papstfabeln des Mittelalters* (1863). In 1864 Pius IX. issued his *Syllabus* condemning certain current philosophic systems, which was replied to anonymously by the pub. of *Janus*, written by D. in collaboration with Huber and Friedrich. When in 1870 the Vatican Council defined the doctrine of papal infallibility, D. headed a protest, and in 1871 addressed his famous letter to the archbishop of Munich, in which he refused to accept the doctrine. He was excommunicated, but several of the leading univ. of Europe expressed themselves in his favour by conferring on him honorary degrees. During the latter years of his life he endeavoured to bring about a union of the Christian churches which do not belong to the Rom. Communion. He was elected a president of the Munich Academy in 1873. His later pub. include *Quellenverk zur Geschichte des Konzils von Trient* (1876), and *Studies in European History* (Eng. trans.) (1890). See Lord Acton, *Döllinger's Historical Work* (in *Eng. Historical Review*, vol. v.), 1890; and life by J. Friedrich, 1899-1901.

Dollman, John Charles (1851-1934), Eng. painter. His most famous pictures are 'The Hunter' (1911), and a much earlier one, 'Les Misérables' (1886) which is now in the London Museum. His 'A Very Gallant Gentleman' (1914), a memorial to Captain Oates who perished with Scott in the Antarctic is in the Cavalry Club. D. had pictures in the Royal Academy almost without a break for sixty years.

Dollond, John (1706-61), distinguished London optician, by trade a silk weaver. He studied mathematics, astronomy, and optics, and was also a good linguist. In 1752 he became a practical optician in partnership with his son, Peter, founding the well-known firm of Dollond & Co., Ltd., in St. Paul's Churchyard. In 1758 his treatise on the dispersion of light, pub. in *Philosophical Transactions*, won him the Copley medal from the Royal Society. Its result was his invention of the achromatic telescope.

Dolman (Turkish *dolaman*), originally a long, loose garment with narrow sleeves. It was worn usually by the Turks, and was the name of the uniform jacket worn by Hussars.

Dolmen (Celtic *daul*, table; *maen*, stone), a modern archaeological term applied to the megalithic framework of prehistoric sepulchral structures, which were formerly called cromlechs. On the Continent of Europe the term is used to describe the whole structure with the cairn or covering mound. There are numerous Ds. in France, the Grotte aux Fées at Metzray, near Tours, and La Pierre Turquoise in Seine-et-Oise being very fine specimens. In England the word is usually applied



W. F. Mansell

DOLMEN DE MANÉ KERIONEC, BRITTANY

only to the stone props with accompanying stone roofs, such as Kils Coity House, near Aylesford in Kent. There are over 700 Ds. in Ireland. See Borlase's *Dolmens of Ireland*, 1897.

Dolmetsch, Arnold (1858-1940), Fr. expert on old musical instruments and their music; born at Le Mans. Studied violin under Vieuxtemps in Brussels and at the Royal College of Music, London. Then became a teacher at Dulwich College. Collected and repaired old instruments and learned to play them. At Chickering factory, Boston, U.S.A., 1902-09, and later had a dept. in Gaveau factory, Paris, 1911-14, where he made clavichords and harpsichords; returned to London, 1914, and equipped a workshop at Haslemere, Surrey, where he arranged periodical festivals of old music. He made and revived the playing of most instruments of the fifteenth to the eighteenth centuries. Supporting these activities was a 'Dolmetsch Foundation' instituted on the suggestion of the poet-laureate, Bridges. Awarded a Civil List pension in 1937. Pub.: *Select English Songs and Dialogues of Sixteenth and Seventeenth Centuries*, 1912; *The Interpretation of the Music of the Seventeenth and Eighteenth Centuries*, 1915.

Dolo, tn. in the prov. of Venice, from which it is 12 m. distant, in Italy. Pop. 8700.

Dolomieu, Déodat Guy Sylvain-Tancrède Gratre de (1750-1801), a famous Fr. geologist and mineralogist of Dolomieu,

Isère, France. Early a member of the Order of Malta, he killed a knight of his gallej in a duel (1768), but the death-sentence was revoked by the grand master, and nine months' imprisonment substituted. D. soon left the army to study science, visiting Etna, Vesuvius, the Apennines, Lipari Is. and Calabria. In 1783 he pub. *Voyage aux îles de Lipari*; in 1784, studies on earthquakes; and in 1785 appeared memoirs on basalt, the mineral 'dolomite' (named after him, 1791). He became prof. of geology at the School of Mines, 1796, and Daubenton's successor at the Natural History Museum, 1800. In 1798 on the scientific staff which accompanied Bonaparte's expedition to Egypt. Returning for his health, 1799, he was imprisoned at Taranto, and only released after the battle of Marengo, 1801. Other works are: *Mémoires sur les îles Ponces*... (1788), *Dernier voyage dans les Alpes* (1802), *Philosophie Minéralogique*, (1802, partly written in prison).

Dolomite, common mineral crystallising in rhombohedra and consisting of carbonates of calcium and magnesium. It has a hardness of 3½ to 4, and a specific gravity of 2·8, and is therefore harder and heavier than calcite. The crystals are usually white in colour, and have curved faces, some varieties being almost spherical. The term D. is also applied to rocks containing that mineral. Such rocks are common to every geological formation both in the Old World and in the New. They seldom contain fossils and are often found in the neighbourhood of rock salt and gypsum. Many of the D. rocks of Britain are esteemed as building stone. The Houses of Parliament were built with D. from Bosover, in Derbyshire; other localities are Nottinghamshire (Mansfield stone) and Durham. Ds. are common in the Alps and a district in the S. Tyrolean Alps, much favoured by tourists, is known by that name.

Dolomites, The, mountainous dist. in the S. Tyrolean Alps. It is chiefly composed of magnesian limestone, where the peaks rise in most fantastic forms and shapes, and are streaked by veins of wonderful vivid colourings. The D. region lies between the Brenner railway from Franzensgaste to Trent, and the road over the Monte Croce Pass from Innichen in the Drave Valley by way of the Sexten valley, and the Piave valley to Belluno and Feltre. The highest peak is the Marmolata, 10,972 ft., but other much more typical peaks are the Sorapiss, the Cimon della Pala, the Langkogel, the Pelmo, Drei Zinnen, and Rosengarten.

Dolon-Nor, or **Lama-Miao**, tn. of Jehol, Manchuria. It is situated 165 m. N. of Peiping, and is noted for the manuf. of brass and iron idols, vases, bells, etc. It is a centre of trade for E. Mongolia. There are numerous ruins and Buddhist temples in the neighbourhood. Pop. 30,000.

Dolores, tn. of Buenos Aires in the Argentine Republic. It is 127 m. from the city of Buenos Aires by rail. Pop. 14,600. (2) A tn. in Uruguay, S. America. Pop. 8000.

Dolphin, popular name given to many

cetaceans, but applied particularly to members of the genus *Delphinus*, which belongs to the family Delphinidae. There are four known species of these mammals, all of which have a long and distinct beak, numerous teeth—forty to sixty in number—and sickle-shaped fins; in length they are not usually more than 10 ft.; in habit they are gregarious, and the diet consists chiefly of herrings. *D. delphis*, the common D., is found in the Mediterranean and N. Atlantic; *D. tursio* is sometimes found off Brit. coasts. Other members of the same family, but of different genera, are called Ds., and two well-known species are *Sotalis sinensis*, the Chinese white D., and *Graminus griscus*, Risso's D. In ancient times the D. was sacred to Apollo, and has since been used as a symbol. The fishes known as Ds. are members of the family Coryphenidae (see CORYPHENEA).

Dolphin, The, see DELPHINUS.

Dom, 14,912 ft., the highest mt. entirely in Swiss ter. It rises between the valleys of Saas and Zermatt. First ascent by the Rev. J. L. Davies in 1858.

Domagk, Gerhard, Ger. chemist, b. 1895 at Lagow, Brandenburg, attached to the Bayer Company at Elberfeld. Discoverer of Prontosil, and other new drugs of medical value. His results are due to an extension of the method developed by Ehrlich (q.v.), but he tried the effects of a series of dyes on bacteria in the body, irrespective of their effects on bacteria outside the body. He pub. the discovery of Prontosil in 1935—a wonderfully effective remedy against streptococcal infections, such as puerperal fever and gonorrhoea. Awarded Nobel prize for medicine in 1939.

Domat, or **Daumat**, Jean (1625-96), Fr. jurist, was the author of *Lois civiles dans leur ordre naturel* (1639), and *Le droit publique* (1697). This work, which earned for D. a pension of £2000 from Louis XIV., is still regarded as a valuable and authoritative treatise on the science of law, all law being considered a development from principles of ethics. When Pascal died D. took care of his private manuscripts.

Domazlice, or **Taus**, manuf. tn. of Bohemia, Czechoslovakia. Pop. 7700.

Dombasle, small tn. of France, in the dept. of Meurthe-et-Moselle, situated about 10 m. S.E. of Nancy. It has the most important works in France for the manuf. of soda and its chemical products. Pop. 8000.

Dombes, name of a former dist. of France, which now forms a part of the dept. of Ain. Numerous small lakes are found, which rest on a substratum of clay that was artificially made in the ninth and tenth centuries. Owing to the unhealthiness of the district, two-thirds of the marshes have been reclaimed.

Dombrowski, Jan Henryk (1755-1818), Polish general, b. at Pierszowice in the prov. of Cracow, from 1792 to 1794 took part in the Polish campaigns against Russia and Prussia, gaining distinction during the siege of Warsaw under Kosciuszko. In the 18. campaign he was conspicuous for his bravery at the Trebbia (1799). With the div. of Foles he had

organised for Napoleon in 1806, he commanded in the Polish campaign of 1809, and during the fatal march on Moscow in 1812 was wounded whilst crossing the Beresina. For his reorganisation of the Polish forces he was appointed cavalry-general in the new kingdom of Poland (1815).

Dome (It. *duomo*), applied since the Renaissance strictly to the outer part of a circular or polygonal roof (of which the 'cupola' is the inner part), rising above the rest of the building. It was known to the Assyrians and Persians, and used to a certain extent among some Gk. tribes. It formed a very favourite feature of Renaissance church architecture. Each vertical section forms a semicircular or pointed arch. The Romans really developed the D.

Correggio and Parmigiano, later joining him at Rome. Cardinal Agucchi was his first patron, and employed him in his palace. D. helped Annibale Carracci at the Farnese, and painted 'The Death of Adonis' from his own designs. He painted frescoes for Cardinals Borghese, Farnese, and Aldobrandini. He should be judged chiefly by his frescoes, and is undoubtedly one of the finest of all It. painters. Some of the best are the series at the Basilican Abbey of Grottaferrata. His famous oil painting, 'The Last Communion of St. Jerome,' was judged by Poussin next best in Rome to Raphael's 'The Transfiguration.' In 1617 he returned to Bologna disgusted by the jealousy of rivals, but was in Rome again in

Rex ten in dñio Stochæ. De firma regis. E. fuct. Ic se defit
 p xxii. bid. Nichl getdauet. Tya e. xvi. car. In dñio fone
 ii. car. / xxiii. uille / x boni cū. re. car. Ibi gecta. q. Will's
 cen de rege dñi dñat bida melemofina. Ibi v. seru. / u. mo
 lon de xco lot / xxi. xē pā. Silua. xl. porē. & pfa ē.
 in parco regis.
 T.R.E. / post. ualb. xii. lib. Modo. x. lib. Tam qm xxi
 pald. xv. lib. ad penfū. Vicecom 17. x. v. solut.

AN EXCERPT FROM THE DOMESDAY BOOK

as an architectural ornament, though it is often spoken of as a product of the East, owing to its frequent use in mosques. In Italy 'dome' often had the wider meaning of cathedral or chief church (*domus*, or house of God). Cf. Ger. *dom* or *domkirche*, cathedral. Ds. are much used in the Mohammedan architecture of Turkey and India, notable examples being Santa Sofia, Constantinople (A.D. 538), supported on four arches by means of 'pendentives'; Taj Mahal, Agra. The most noted in modern Rome are the Pantheon (probably of Trajan's time, A.D. 98-117); St. Peter's (139 ft in diameter, 330 ft. high). St. Mark's, Venice, has five Ds. The Invalides and Panthéon of Paris are famous, also the Capitol at Washington, America. In London St. Paul's Cathedral (the dome of which has a diameter of 112 ft.), and the Albert Hall are the best examples. The Rotunda of the Musta Church, in Malta, which has a diameter of 118 ft., is the largest D. in the British Empire.

Dome of the Rock, see OMAR, MOSQUE OF.

Domenichino, **Domenico Zampieri** (1581-1641), It. painter of the Bolognese school, pupil of Calvert and the Carracci. A friend of Albani, he visited with him Parma, Modena, and Reggio, to study

1621. In 1630 he went to Naples to decorate the Capella del Tesoro. His fame roused much envy among the estab. painters there, and it was suspected that he was poisoned. Among his works are: 'The Flagellation of St. Andrew' (1608), frescoes of the lives of St. Nilus and St. Bartholomew (1609-10), frescoes of St. Cecilia (S. Luigi de' Francesi, Rome), 'The Four Evangelists' (S. Andrea della Valle), 'Diana and her Nymphs', 'The Sybil of Cumæ' (Borghese Palace), 'The Repose of Venus', 'Diana and Actæon' (Pitti, Florence), 'The Angel and Tobias', 'St. George and the Dragon' (landscapes, National Gallery, London), 'Moses and the Burning Bush', 'Combat of Hercules and Achelous', 'The triumph of Love' (Louvre), 'St. John in a Vision', 'Time Trampling on Youth'. His portrait of Cardinal Colonna was highly praised. See C. P. Landon, *Vie et Œuvres des Peintres les plus Célèbres*, 1803-24; and life by L. Serra, 1921.

Domesday Book, or **Doomsday Book**, a valuation survey of England made by William the Conqueror. The survey was begun in 1085 and completed in 1087. The book records the owners of the land, the nature of its cultivation, the number of its inhabs., and their respective classes—freemen, villeins, and serfs. The com-

pillan of the book was a marvellous enterprise, admirably planned and of inestimable value both in times of peace and of war. It made possible taxation on a sound basis, besides being a census roll and a record of estate valuations. To the historian the book is priceless. The survey was called the D. B. because in the eyes of the people it was like the great reckoning of doomsday. The original MS. in two vols. is preserved in the Public Record Office, London. See H. Ellis, *A General Introduction to the Domesday Book*, 1833; J. H. Round, *Domesday Studies*, 1888; F. W. Maitland, *Domesday Book and Beyond*, 1897, 1907.

Domestication of Animals, process by which man has changed certain species of animals to suit his own needs. This change can only be rendered effective if carried on for successive generations, as the term domestication implies permanent changes in certain characteristics, and also in the structure in many cases, these changes being brought about by alteration of their environment and a system of breeding. This includes also the protection and provision of food for some animals and the special control exercised over them which prevents their leading an absolutely wild life. It is necessary in the case of the animals that they should be able and willing to adapt themselves to this control, and that they should be fertile though under control or living under different conditions. The process by which domestication is produced consists principally in selecting certain species which possess the most desirable qualities and in causing them to breed only with other desirable species, at the same time, in all probability, altering their food and surroundings. This leads to changes in their outward form, in some cases not very noticeable, in others very marked, as the difference in feathers, hair, colouring, and, deeper-seated still, those of structure. Among domestic animals there may be mentioned a number of birds, as fowls, ducks, geese, and many others. Dogs, cats, and several other mammals are also domesticated. Certain kinds of insects and fishes, too, have certainly been altered by man, if they cannot lay claim to the title of domesticated animals. See C. Darwin, *The Variation of Animals and Plants under Domestication*, 1868; and N. S. Shaler, *Domesticated Animals, their Relation to Man and his Advancement in Civilisation*, 1896.

Domestic Economy (from Gk. *oikonomia*, management, which is made up of *oikos*, house, and *nomos*, to manage) is the only expression in which the original sense of house management survives. To-day it is used both of the thrifty control of the home from a financial point of view and more generally of the science which teaches household duties and control. This science has, in recent years, assumed a prominent place in the education schemes of girls' schools and, in some univs., for women students. D. E. treats of the study of food values and preparation of food, nutrition and physiology, personal hygiene, ventilation, sanitation,

laundering, needlework, home nursing, and the management of household expenditure and income. Degree and diploma courses are taken at London, Bristol, Reading, and Sheffield univs. Other D. E. institutions are the National Training Colleges of Domestic Subjects, Buckingham Palace Road, London; and similar centres in Aberdeen, Bath, Belfast, Bristol, Cardiff, Edinburgh, Glasgow, Gloucester, Leeds, Leicester, Manchester, and Newcastle-on-Tyne. See also HOUSECRAFT AND HOUSEWIFERY.

Domestic Servants are those employed to perform the so-called menial work of a household. The majority of them are women, though page boys, footmen, and butlers, etc., are indispensable in all large estates. A mistress may dismiss a maid at once for dishonesty, immorality, hopeless incapacity, or flagrant disobedience, and is not obliged to give a character if she judges the maid unworthy of one. Servants are usually paid by the quarter or the month, a month's notice being required on either side for the termination of a contract. They are entitled to a month's wages if summarily dismissed. D. S. are included in the Employers' Liability Act, and under the National Insurance (Industrial Injuries) Act, 1946 (replacing the Workmen's Compensation Act, 1925) (see WORKMEN'S COMPENSATION) can claim compensation for injuries arising during their employment, provided that gross negligence or other wilful misconduct on their part has not caused the injury. If the servant loses his life, his dependants are entitled to a sum equal to three years' earnings or £200, whichever sum is larger, but not exceeding in any case £300; if he leaves no dependants, a sum not exceeding £15 must be allowed by the employer for medical and funeral expenses. If the servant is totally or partially disabled, his master must pay him a sum not exceeding 30s. a week till death or recovery. Dismissal without just cause shown entitles the servant to normal and also to board wages until the expiration of the half year. All D. S. must insure against sickness under the National Insurance Acts, the conditions being the same for them as for other workers. Statistics show a decrease in the number of D. S. proportionate to the population. The census returns of 1921 showed that 371,682 men-servants were employed throughout Great Britain in that year, and 1,844,574 women, giving a total of 2,216,256. In the financial year 1936-37, the number of licences taken out for male servants was only 173,822. There are no up-to-date statistics of female D. S. but the total to-day is far below the total for 1921. A gov. scheme introduced by the Labour gov. in 1947, as the National Institute of Houseworkers, had for its primary object the raising of the prestige of domestic work by giving it the status of a skilled craft, and consequently attracting more workers. It estab. a diploma for skilled domestic workers, who qualify at the end of a six months' training course and to other domestic workers able to satisfy an examining board. The Institute cannot enforce standards of

conditions and wages, but prescribes rates of wages and conditions to which employers of holders of diplomas are expected to conform. 'Resident workers' of the Institute have a working week of 48 hours and 'non-resident workers' one of 44 hours, spend over a seven-day week. Employees are entitled to one full day and one half day off each week but there may be mutual agreement for three half days instead. Workers have a fortnight's holiday with pay each year for the first five years after obtaining the diploma and of three weeks a year afterwards.

Domett, Sir William (1754-1823), Eng. admiral, b. in Devonshire. He was present in the light off Ushant (1778), in the *Chesapeake* under Arbuthnot (1781), and in the battle of the Saints (1782). In Howe's battle (1794) he commanded the flagship *Royal George*, and in 1795 he was present in the action off L'Orient. Four years later he fought in Basque road, and at Copenhagen he served as flag-captain under Sir Hyde Parker (1801).

Domfront, tn. in the dept. of Orne, France. It owes its origin to a hermit Saint Front, of the sixth century. It is perched on a hill and has kept fourteen towers and the high wall which enclosed it in the eleventh century, the dungeon of its castle, old granito houses, and a beautiful church. It suffered much from war and was besieged in 1574. Pop. 3800.

Domicile, according to Rom. law, the place 'where a person has his family abode and chief business premises, whence he does not depart unless business affairs compel him, and on leaving which he considers himself a sojourner, and on returning to which he considers himself at home' (Cod. 10, lit. 40, 1, etc.). The D. of the parents is the D. of the child, and the latter changes with the D. of the parent during the child's minority. An illegitimate child takes the D. of the mother. Should the father die during the minority of a child, the child's D. is the last D. of the father. A woman when she marries takes the D. of her husband. A new D. is acquired by residence and intention of adoption. When a man has two or more places of residence, his D. is that residence which he selects as his home and which is the centre of his affairs. D. is therefore of three types: (1) D. of origin, depending on the D. of the parents at the time of birth; (2) D. of choice, which is voluntarily acquired by a party; (3) D. by law, e.g. the D. which a wife acquires by marriage. See *LEX LOCI*.

Dominance, in biology connotes the fact that when an offspring receives the genes of two contrasting characters from its parents, in many cases one of those characters, the dominant, will develop to the exclusion of the other, instead of combining with it. The repressed character—the recessive—may, however, reappear in the next generation, thus, a hybrid between pure-bred horned and hornless cattle produces offspring which are all hornless; but if these were mated some horned animals might be found among their descendants. See *HEREDITY*.

Dominio, St. (Dominic de Guzman) (1170-1221), was b. at Caleruega, a small tn. in the diocese of Osma in Old Castile, Spain. As a young priest he resigned a canonry to take up missionary work among the Albigenses in the S. of France. In 1215 he founded his order of mendicant friars, adding to the Rule of St. Augustine his own constitutions. Pope Honorius III. recognised and sanctified the order in 1216. The régime of the order was most severe, enjoining silence, poverty, and fasting. The friars were called Dominicans from their founder; Preaching Friars from their zeal in persuasion; Black Friars from the colour of their dress; and in France, Jacobins, from their original headquarters in the Rue St. Jacques at Paris. For women desirous of following the same Rule the 'Second Order' was formed; and a confraternity of men and women in the world but governing their lives by the same principles was called the 'Third Order.' The order numbered some famous divines, e.g. Thomas Aquinas. The Dominican Order have always upheld Aquinas's theological system (Thomism), and on some matters have taken part in acrimonious disputes with theologians of other schools, notably the Jesuits. The Order furnished examining judges and often the presidents of the Span., Rom., and Portuguese Inquisitions. St. Dominic was canonised by Pope Gregory IX. in 1235. See A. Jessopp, *The Coming of the Friars*, 1889; and J. Herkless, *Francis and Dominic*, 1901.

Dominica, largest of the Windward Is., Brit. W. Indies, is 29 m. long and 15 m. broad, area 305 sq. m., of volcanic formation and very mountainous, with a healthy climate and a rainfall of 80 in. in parts and over 250 in. in others. Sugar has ceased to be an article of export, and the main industry is the cultivation of limes and the manu. of their products. There are about 100 pure Caribs still living on the Is. D. owes its name to the fact that it was discovered by Columbus on a Sunday (Span. *Domingo*), Nov. 3, 1493. The Is. was included in a grant by Charles I. to the earl of Carlisle, but as all attempts to subdue the aboriginal Caribs failed, it was agreed in 1748 by the treaty of Aix-la-Chapelle that D. and other W. Indian Is. should be neutral and the Caribs left in possession. But the Fr. ignored this arrangement and estab. plantations in the Is. after which England captured it in 1759 and by the peace of Paris, 1763, it was assigned to England. In 1778 the Fr. under the Marquis de Bouillé invaded it and marched into Roseau; but though many Brit. W. Indian Is. fell into Fr. hands at this time Rodney, at the B. of Saints saved the situation, and D., with various other Is., was restored to England by the Treaty of Versailles, 1763. The Fr. republican, Victor Hugues, however, invaded D. with a force from Guadeloupe in 1795 but was repelled. Then later, in 1805, Gen. La Grange captured Roseau once more but was unable to reduce the colony and after extorting a payment of £12,000 from the people and vainly calling on the Eng. governor to surrender,

sailed to Guadeloupe. The Eng. governor, Gen. Prevost, was duly rewarded by the Dominican House of Assembly for his gallantry and on his return to England was created a baronet. Until 1940 D. was a part of the Leeward Is. group but in that year became a separate colony under the governor of the Windward Is. A legislative council was created in 1898 when the assembly was abrogated and Crown Colony gov. estab. but in 1925 the elective principle was reintroduced. Pop. 42,000. Roscau (9800) is the cap.

Dominical Letters, the letter used to denote the Sundays throughout one year. The seven letters, A B C D E F G, are used in succession to denote the first seven days of the year, from Jan. 1 to 7, and then in rotation the next seven days, and so on. Thus, if Jan. 3 be a Sunday, it is evident that the D. L. for the year is C, as the number of letters and of the days of the week is the same. Leap year has two D. L., one for the days preceding Feb. 29 and the other for the rest of the year. The intercalary day is marked by the same letter as the day preceding it, thus effecting the change on the following Sunday. D. L. displaced the nundinal letters in the Rom. calendar: rules and tables for finding them are given in prayer books.

Dominican Order, see under DOMINIC, ST.

Dominican Republic, also known as **Santo Domingo**, W. Indian republic, formerly the Sp. portion of the Is. of Santo Domingo or Hispaniola. It occupies the E. or larger part of the Is. of which Haiti is the W. part. Its area is 19,332 sq. m., with over 1000 m. of coast-line, and the pop. 2,120,000. There are 18 provs., and the chief tns. are Ciudad Trujillo (formerly Santo Domingo, pop. 139,000); Santiago de los Caballeros (59,600); San Pedro de Macoris (23,700); San Francisco de Macoris (17,200); and Puerto Plata (16,500). The chief crops are sugar and cocoa; coffee and tobacco are also grown in good quantities; and, among other products, are mahogany and other furniture, hardwoods, cotton, lignum vitae, honey, logwood, turtle shell, etc. In 1916 imports were valued at 27,880,000 gold pesos and exports at 64,792,000. The gold peso equals the U.S. dollar. There are 168 m. of publicly-owned railways. There is cable communication with N. and S. America, New York, Porto Rico, and Cuba. The republic is governed under a constitution proclaimed on Jan. 10, 1947. Congress is composed of a Senate of 19 members (one from each prov. and the dist. of Santo Domingo) chosen by direct popular vote and a chamber of forty-five deputies, both houses being chosen for five years. The judicial power is vested in the Supreme Court, courts of appeal, courts of first instance, communal courts, and other tribunals set up by special laws such as the land courts. The state religion is Rom. Catholicism, and other forms of religion are tolerated. The Dominican army consists of 12,000 officers and men; there is an air corps, and a small navy. S. D. is the oldest settlement of European origin in the New

World, having been founded by Bartolomeo Colombo (or Columbus) in 1496, when it was named Hispaniola. After its discovery it was occupied by numbers of Spaniards with imported African slaves and the local tribes were quickly exterminated. An independent republic was proclaimed in 1821, when the Spaniards evacuated the Is. The present republic seceded from Haiti (q.v.) in 1844, and became the independent Dominican Republic in that year. In 1916 American military forces landed in S. D. and a military gov. was proclaimed. Between 1922 and 1924 a provisional Dominican gov. was in office, but a duly elected constitutional gov. replaced it in July 1924, with authority in all matters except customs and foreign debt redemption, which latter were administered by an Amer. official. In 1941 a law was passed for the creation of the Reserve Bank, which, starting with branches purchased from the National City Bank of New York, opened for business on Oct. 27, 1947. In 1947 a new Central Bank was inaugurated, with total assets (Dec. 31, 1947) of 13,625,000 pesos. See O. Schonrich, *Santo Domingo: The Country with a Future*, New York, 1919; S. Welles, *Naboth's Vineyard*, 1928.

Dominions Office, Brit. gov. dept. dealing with the United Kingdom gov. relations with the self-governing Dominions including S. Rhodesia. Up to 1925 its work had been done by the Colonial Office, but in that year a separate Secretary of State was appointed with a separate (but more or less interchangeable) staff. The D. O. dealt also with the High Commission, etc., of the Bechuanaland Protectorate, Basutoland, and Swaziland. In July 1947 the title of the D. O. was changed to Commonwealth Relations Office.

Dominion Status, the political status of any co-equal member of the Brit. Commonwealth of Nations—which latter term has now become the official substitute for the older 'British Empire,' a term which in the view of many savours too much of the old-time Imperialism. The self-governing dominions are Canada, Australia, New Zealand, S. Africa, India, Pakistan and Ceylon. Newfoundland (q.v.) was formerly a dominion but after having had its D. S. suspended for some years for economic reasons, it finally elected to become a prov. of Canada and so became in March, 1949. S. Rhodesia enjoys a large measure of autonomy but should be classified as a self-governing colony. All the seven great Dominions enjoy complete autonomy and may even, and do, appoint their own diplomatic representatives in foreign caps. or in each other's caps. They are, in fact, bound together with the 'mother country'—an expression of no more than historical import by nothing more than their common allegiance to the Crown. Their gradual approach towards independence was recognised in the Balfourian formula adopted in the Inter-Imperial Relations Report of the Imperial Conference of 1926, which Report states that equality of status is the principle governing inter-imperial relations or affairs as between

the U.K. gov. and the gov. of the various Dominions, which are here described as 'autonomous communities within the British Empire, equal in status, in no way subordinate one to another in any respect of their domestic or external affairs, though united by a common allegiance to the Crown and freely associated as members of the Brit. Commonwealth of Nations'. This loosely worded formula, found its sequel in the Statute of Westminster of 1931, the purpose of which was to give extra-territorial operation to the legislation of the various Dominion Parliaments and to remove the last vestiges of the governor's veto as enshrined in the classic Colonial Laws' Validity Act of 1865—the governor—or governor-general as he is called in the case of a Dominion—having now become merely the King's representative and in no sense the agent of the United Kingdom gov. The common allegiance to the Crown is exemplified in the appointment of the governor-general—the choice of whom is the function of the premier of the Dominion concerned—the right of appeal to the Judicial Committee of the Privy Council and the status of all subjects of the Dominions as Brit. subjects. Eire (Ireland) has by Act of the Dail abolished the right of appeal to the Judicial Committee in the case of its own citizens and has eliminated the Crown from the internal part of its Constitution. See also BRITISH EMPIRE OR BRITISH COMMONWEALTH OF NATIONS.

Dominis de, Marcus Antonius (1566–1624), It. theologian and natural philosopher, b. at Arba in Dalmatia. During his novitiate in the Jesuit order, he taught rhetoric, mathematics, and physics. It was during this period that he wrote his *De Radiis Visus et Lucis in Virtus Perspectivae et Iride*. He became bishop of Segni and afterwards of Spalato, but being implicated in the disputes between Rome and Venice, having quarrelled with the pope and exhibited, moreover, certain Protestant leanings, he was obliged to resign his see. He was subsequently received in 1616 by James I. of England. As dean of Windsor he wrote *De Republica Ecclesiastica*. He afterwards expressed a desire to return to the Catholic Church, but some letters he possessed belied his conversion, and he was imprisoned under the Inquisition at St. Angelo, where he died in a few months. His chief merit rests on his discoveries with regard to the refraction of light in the rainbow.

Dominium, term in Rom. law which has been adopted into most European codes. It signifies complete and lawful right to and in an object, being distinct from the usufruct which is merely the right arising from actual possession.

Domino, originally the hood or cape with which officiating priests protected themselves in cold weather. In Venice and other parts of Italy the D. was worn at masquerades and fancy-dress balls by people not otherwise dressed in character. It was a wide-sleeved enveloping cloak with a half-mask. The word D. is popularly used as synonym for mask.

Dominoes (probably so called from the resemblance of the black backs of the pieces to the mask known as the domino), a game, partly of chance, partly of skill, played by any number of players, from two upwards. Twenty-eight oblong pieces of ivory, bone, or wood, white on the face, are required. The white face is divided into two parts by a line, and, except in the case of the double-blank, there are dots on one side or both sides of this line from the number of which the piece takes its name. Thus there is the double-six, with six dots on either side, the six-five, the six-four, etc.; the double-five, five-four, etc., ending with six-blank, five-blank, etc. Sometimes sets are also used ranging up to double-nine and double-twelve. The *block* and *draw* games are played as follows: The pieces, called also cards, are shuffled on the table face downwards, and each player draws the number of cards required, usually seven. The remainder of the pieces form the *stock*. The leader then plays, or, technically speaking, *poses* a D., generally the highest he has; the second player must then pose one from his own set so that one of its numbers shall be the same as one of those on the D. first posed. Thus, if double-six were first posed, he can follow with any D. which has six on one side. By some rules, however, if a player pose a double he may play a second card if possible. If a player cannot match he 'passes,' and the first player (supposing the number be two) plays again. If the 'draw' game is being played, however, a player who cannot match may draw on the stock until he gets a card that does match, provided always that two cards be left in the stock. If a player play out all his pieces he cries 'Domino' and wins the hand, scoring a number of points equivalent to the number of *pips* on his opponent's remaining cards. If neither can play any further, each counts the number of pips on his remaining D., and each then scores the number of his opponent's pips. Fresh hands are then dealt until one player reaches 100. Double cards are laid cross-wise (*à cheval*). This is the commonest system of playing D. in England, but the *matador* is the commoner form on the Continent and is perhaps the more scientific. The object here is not to match the end number, but to make that number up to seven. The game probably came from the E.

Domitian (Domitianus), Titus Flavius, (A.D. 51–97) b. at Rome, the youngest son of the Rom. Emperor Vespasian, succeeded his brother Titus as emperor in the year A.D. 81. Though Tacitus (*Hist.* iv. 51, 68) alludes to the immoral practices of his youth, he commenced his reign with an earnest attempt to stem the tide of immorality at Rome. He reorganised the gov. of the provs. and erected some fine buildings at Rome. During his reign the conquest of Britain was effected by Agricola. The vices that disgraced his youth, however, grew malignant towards the end of his reign. He exiled Epictetus and other philosophers from Rome. In A.D. 93 a persecution of the Christians and

Jews took place with cruel massacres. A conspiracy was formed against the emperor in A.D. 96, and he was put to death by his officers in his own chamber, with the connivance of his wife, Domitia.

Domitius Ulpianus, see **ULPIAN**.

Domodossola, tn. in Italy in the prov. of, and 55 m. N.W. of the tn. of Novara. It is 25 m. S.E. of the head of the Simplon Pass. Pop. 6400.

Domremy-la-Pucelle, vil. of France, in the dept. of Vosges. It is situated on the l. b. of the Meuse, about 7½ m. N. of Neufchâteau, and 30 m. S.W. of Nancy. It is historically interesting as being the birthplace of Joan of Arc (La Pucelle d'Orléans), 1412. The house in which she lived is preserved, and over the door are the arms of France, together with the following inscription: 'Vive Labeur; vive le roi Louys.' Opposite the house is an immense bust of the heroine, and there are sev. monuments erected to her memory. Pop. 300.

Don, (1) called by the ancients the Tanais, a river, of S. Russia, rises in Lake Ivanski in Tula, and flows in a S.S.E. direction through Ryazan, Tambov, Voronezh, and the ter. of the Don Cossacks (q.v.), but repelled by the mts. Situated to the W. of the Volga, it turns at Kalatch in a S.W. direction and enters the Sea of Azov. The projected Don-Volga Canal will give the whole of the Caucasus access to the Black Sea, the Caspian, and, by way of the Volga, to a large part of the lands of European Russia. The riv. is 1156 m. long and is navigable up to Zadonsk. In spring the riv. overflows its banks and covers the adjoining ter., with unhealthy swamps. The fisheries on the river are extremely valuable. The Don regions, including the Donetz Basin or Donbas, were the scene of protracted and desperate battles in 1941-43 between Soviet and Ger. forces, in which Rostov-on-Don and Kharkov on a trib. of the Don, changed hands sev. times. For full details see **EASTERN FRONT** or **RUSSO-GERMAN CAMPAIGNS** IN SECOND WORLD WAR. (2) Riv. of N.E. Scotland, rising in the Lodder Hills and flowing E. to the N. Sea near Aberdeen, 83 m. long. (3) Riv. of N.E. England rising in the Pennines and flowing through Sheffield to join the R. Ouse at Goole, 70 m. long.

Dona Francisca, or **Joinville**, tn. of the prov. of Santa Catharina, S. Brazil. It is to the W. of the town of São Francisco, and about 80 m. N. of Florianopolis. Pop. 25,000.

Donaghadee, tn. of N. Ireland, in co. Down, situated on the Irish Channel, near Belfast Lough. It is the nearest port to Britain. The harbour is small, and accommodation scanty, but a shipping trade in dairy produce and cattle is carried on. Pop. 5000.

Donaghmore, name of numerous places in Ireland, situated in cos. Cork, Down, Kildare, Kilkenny, Leix, Limerick, Meath, Tyrone, Wicklow.

Donash ben Labrath, Jewish poet and grammarian of the tenth century, b. at Bagdad. Not only was he one of the first to treat grammar scientifically, but he

also wrote the earliest known specimen of metre in the Jewish language, his verse being an imitation of the Arabic.

Donatello, or **Donato de Nicolo di Betto Bardi** (c. 1386-1466), famous It. sculptor, b. at Florence. His father a wool merchant, came to Rome at the age of seventeen with his friend Brunelleschi, where the two youths, besides carrying on the trade of goldsmith, devoted themselves to the study of architecture. After some



DONATELLO: ST. JOHN THE BAPTIST

years, both men returned to Florence rich in ideas and inspiration. D. is celebrated for his marble and bronze statues, which are beautifully executed, and which reveal the nobility and force of those works of antiquity which formed his constant study and delight. He combines the good points of the Renaissance together with his own original way of treating his subject. The Renaissance betokened the revival of the Classic as opposed to the Gothic in the hist. of architecture, and Brunelleschi, D.'s lifelong friend, was the inaugurator of this new movement. D.'s patron was Cosimo de' Medici, who well rewarded him for his industry. The sculptor was correspondingly generous towards his friends. His prin. works are the marble statues of St. Peter and St. Mark in the church of San Michele at Florence; a bronze statue of David J. Florence, another bronze figure of the equestrian Gattamelata in a public place at Padua. Othersculptural works are the statues on Giotto's belfry, decorative

work on the pulpit of San Lorenzo, and figures in the baptistery at Florence. See Lord Crawford and Balcarros, *Donatello*, 1903, 1911; M. Crutwell, *Donatello*, 1911.

Donati, Giovanni Battista (1826-73), It. astronomer, b. at Pisa. From 1854-64 he discovered six comets, the finest which appeared in 1858, bearing his name. By subjecting the light of a comet to the spectrum analysis, he was able to describe its gaseous composition.

Donatio Mortis Causa, gift made in prospect of death. This practice is derived from Rom. law, and is thus defined in the *Institutes* (ii. tit. 7): 'A gift made under an apprehension of death, as when a thing is given on condition that, if the donor die, the donee shall have it, but that it shall be returned if the donor shall survive the danger he apprehends or repents of his donation or if the donee die before the donor.' Actual transfer is necessary, but where the nature of the goods makes this impossible the transfer of a symbol of ownership (e.g. a key) is permitted.

Donatists, powerful sect which arose in the Christian Church in N. Africa at the commencement of the fourth century. There had long been two parties in Carthage: a moderate party, headed, until his death in 311, by the bishop Mensurius; and a strong fanatical party, headed by Lucilla, a wealthy widow. This latter party carried on in a more developed form the African tradition of severity towards *traditores*. In 311 Mensurius died, and, in order to be beforehand with the rigorists, the moderate party hastily elected Cæcilian as bishop, without awaiting the arrival of the Numidian bishops, and secured his consecration by Felix, bishop of Aptunga. Secundus, bishop of Tigisis, treated this act as illegal, and convened a synod of seventy bishops at Carthage, which excommunicated Cæcilian. The lector Marjorinus was elected in his stead, and on the death of Marjorinus in 315, Donatus the Great, from whom the sect is named, took his place. Both parties had, before this time, appealed to the Emperor Constantine, and his decisions had been in favour of orthodoxy. General synods at Arles (314) and Milan (316) also pronounced against the D., but the schism spread, and there were soon rival bishops throughout N. Africa. The D. excommunicated the rest of the Church, baptising again all Catholics who seceded to them. The orthodox reaction against this practice gave rise to the theory of a sacramental character imparted in baptism, confirmation and order. Finding them proof against persuasion, Constantine ignored them, but they were subjected to severe persecution under Constantians. In 411, a great disputation, attended by 286 Catholic and 279 D. bishops, was held at Carthage, and decision again given for the orthodox. The members of the sect were subject to cruel persecutions in which they gloried; and in the seventh century the sect was annihilated by the Saracens. See D.

Voelter, *Ursprung des Donatismus*, 1883; P. Monceaux, *Histoire littéraire de l'Afrique chrétienne* (vols. iv., vi), 1913, 1923.

Donative, see ADVOWSON.

Donato d'Agnolo, see BRAMANTE, LAZZARI.

Donatus, Ælius, Rom. grammarian who lived in the middle of the fourth century A.D. He wrote a grammar and a commentary on Virgil and Terence. St. Jerome studied grammar under him. The commentary on Virgil ascribed to him is now supposed to be spurious.

Donaueschingen, tn. of Baden, Germany, with brewerles and a silk industry. The tn. was largely rebuilt in 1908 after a serious fire. Pop. 6600.

Donauwörth, tn. and riv. port of Germany, in the prov. of Schwaben, Bavaria. It is situated on the l. b. of the Danube, at its junction with the Wörnitz, 25 m. N.N.W. of Augsburg. At one time it was a free imperial city, and it contains sev. old buildings of interest, including a Benedictine abbey. It was stormed by Gustavus Adolphus and taken by King Ferdinand during the Thirty Years' War. Marshal Soult was victorious over the Austrians at D. in 1805. Flax and hemp, hops and fruit are cultivated. The tn. is noted for manufs. of heavy iron goods, machinery, etc., and some trade carried on by the Danube. Pop. 4700.

Donawitz, tn. of Austria, in the prov. of Styria, situated 2 m. N. of Leoben. Iron foundries, and brown-coal workings. Pop. 18,000.

Don Benito, tn. of Spain in the prov. of Badajoz, 57 m. N.E. by E. of the city of that name, and 25 m. N.E. of Merida. There are manufs. of hats and oil presses. A trade is carried on in corn, fruit, and wine. Pop. 20,700.

Don Carlos, see CARLOS.

Doncaster, co. bor. of Yorkshire, England, on the r. b. of the Don, 35 m. S.W. of York and 156 m. from London. It is on the Great North Road and is served by the old L.N.E.R. of the British Railways. Apart from its importance as a centre for the richest coal-fields in the co. and its manuf. of the L.N.E.R. locomotives and rolling stock, D. has varied industries, including confectionery, artificial silk, cinema furniture, agric. machinery, wallpaper, electrical equipment, and brass, fencing, and rope works. The Mansion House near Priory Place, the first stone of which was laid in 1744, contains one of the finest banqueting halls in the country and its municipal treasures include a map dating from 1683. Other noteworthy buildings are the guildhall, now used solely for police headquarters and courts; the central library in St. George's Gate; the museum and art gallery overlooking the Beechfield Gardens; the technical college for which large extensions are projected; and the corn exchange opened in 1873, adjoining which is the mrkt. hall and covered mrkt.—among the best of their kind in the co. The corporation owns all these buildings, as well as the public utilities, the airport and the racecourse. It also owns six public parks and pleasure

grounds: these include the Hexthorpe Flatts (28 ac.) containing the well-known beauty spot 'the Dell'; Elmfield Park opened in 1923; and Sandall Park, a new park in rural surroundings. To the N. of French Gate is the parish church of St. George. The old building was destroyed in 1853, and the present medieval-looking building, with elaborately pinnacled and battlemented tower, was designed by Sir Gilbert Scott. The Romans had a military station here named *Danum* and in Domesday Book the place name occurs many times as 'Donecaestre.' In 1194 Richard I. gave the tn. its first known charter, and it was a charter of Edward IV., dated Oct. 30, 1467, which authorised the election of a mayor. From such street nomenclature as French Gate, Baxter Gate, St. Sepulchre Gate, etc., it might be inferred that in feudal times, D. was fortified but, according to Leland, it was never a walled town, the word 'gate' in this context meaning simply 'street.' Such names as Priory Place and Greyfriars Road indicate the former presence of religious orders. In the mid-seventeenth century John Evelyn described D. as 'a large, fair town, famous for great wax lights and good stockings'. For its loyalty in the Civil war Charles II. granted the tn. the privilege of being a free borough of itself. The traditions of the tn. when it was chiefly interested in agric. are kept alive in Robert Southey's memoirs of Dr. Daniel Dove. For generations D. retained the character given it by Southey but with the advent of the railway the character of the tn. was completely changed and works for the manuf. of brass, wire, wagons, and woollens opened in due course, while the development of the S. Yorkshire coalfield soon led to further great changes. In 1926 D. was constituted a co. bor. and granted arms which incorporate a Saxon crown indicative of the fact that D. (part of which pertained to the soke of Hexthorpe) belonged to Earl Tostig. Pop. 72,000.

Don Cossacks, Province of the, former prov. of S. Russia lying between Rs. Don and Donetz, and now included in the Rostov and Stalingrad Regions. The country consists mainly of steppes, without trees or shrubs, but rich in pasturage. The chief tns. are Old Cherkask, New Cherkask, and Pordjansk. See *Cossacks* and *Don*.

Donegal, (1) co. of Ireland in the prov. of Ulster, but belonging to S. Ireland or Eire, is bounded by the Atlantic Ocean and the cos. of Londonderry, Tyrone, Fermanagh, and Leitrim. The coast-line is very irregular, being broken by Lough Swilly, Sheep Haven, Boyleagh Bay, Gweebarra Bay, and Donegal Bay. The coast is fringed by many is., of which the chief are Inishnah, Tory Is., and Aran Is. The surface of the country is mountainous. These mts. include eight summits of which Mt. Errigal (2466 ft.) is the highest. Adjoining Malin Beg Head in the W. of Donegal Bay there is a sea cliff 1964 ft. in height. The chief rvs. are the Foyle, the Finn, the Swilly, the Erne, the Gweebarra, the Uweedore and the Owenoe.

The co. also possesses many lakes, of which the prin. are Loughs Derg, Deele, Gartan, Eask, and Glen. The climate of D. is inclement. Rude winds prevail, rendering great tracts of the county barren. The mould in some regions consists of light clay, suitable for crops of potatoes, oats, and barley. Agric. implements are for the most part primitive. The breeding of cattle and sheep is the most profitable occupation of the inhabs. but the fisheries of the coast support most. The country women occupy their time with the embroidery of linen, lace, and muslin. Linen and tweed (Donegal tweed) are also manf. in the county. Of the historical remains the most interesting is the Grianan of Ailbeach, the palace of the kings of N. Ireland from most auct. times. There are also interesting relics of St. Columba and the famous Purgatory of St. Patrick situated on an is. in Lough Derg. The co. tn. is Lifford. Area 1,193,581 ac. Pop. 136,136. (2) mrkt. tn. in the co. of D. at the head of Donegal Bay. It has remains of a castle and a monastery. Pop. 1100.

Donelson Fort, camp at Dover, Tennessee, U.S.A. It was built in the time of the Civil war by the Confederates for the purpose of guarding the Lower Cumberland R., and it consisted of two lines of entrenchments on the land side, and water batteries. It was taken by the Federals in 1862, the prisoners numbering nearly 15,000, which was considerably over two-thirds of the original army.

Doneraile, small tn. of Eire (Ireland) in Cork co., situated on the Awbeg, about 5 m. N.E. by N. of Mallow. Pop. 800.

Donetz, or **Donbas**, name of a great coal dist. of Russia, which forms part of the region of Dniepropetrovsk, Ukraine S.S.R. It extends over much of the Donetz plateau, which is one of the highest portions of the Russian interior. The actual coal-field of the Donbas has an area of about 16,000 sq. m., and produces excellent anthracite and steam coal; iron is also extensively mined. Geologically, the coals are not found until the close of the Lower Carboniferous period. The R. Donetz ('Little Don'), which gives its name to the above dist., is a riv. of S. Russia which flows generally S. for 280 m., receiving on the right the Oudai. It then turns to the W. at Oskal, forms the boundary of the Donetz plateau, and finally flows into the Don, after a course of 680 m. During high water the riv. affords access to the Kharkov Region. The iron and steel industries of the Donbas, estab. relatively late in Russian hist. with aid of foreign capital, and employing coke in place of charcoal for smelting, achieves a higher standard of technique than that in the Urals. The area of the Donbas coal measures, from which about 60 per cent. of Russian coal is produced (67,000,000 tons in 1937), is exceeded only by that of the Kuznetsk coalfield. The Donbas coal seams are thinner than those of Kuznetsk but the Donbas is in a more fortunate position for industrial development. It is, for example, in the centre of a densely populated area, and connects

by the best railway network in Russia, with other large centres of population such as Moscow and Leningrad. The Donbas includes the tns. of Kirovgrad, Stalino, Voroshilovsk, Voroshilovgrad, Artemovsk, and Slavyansk. The Gers. captured the Donetz basin in 1911 but by Feb. 1943 the Gers. were driven out of most of the basin. again. On March 15, however, the Gers., by retaking Kharkov, subsequently regained most of the D. basin, but again evacuated it in Sept.-Oct. See further under EASTERN FRONT, or RUSSO-GERMAN CAMPAIGN IN SECOND WORLD WAR.

Dongen, tn. and com. of the Netherlands, situated in the prov. of N. Brabant. Pop. 7200.

Don Giovanni, see DON JUAN.

Dongnai, see DON-NAI.

Dongola, prov. of the Anglo-Egyptian Sudan, stretching between lat. 70° 50' and 19° 10' N. It consists of a long, narrow plain, situated in the valley of the Nile, and includes both banks of the riv., while to the E. lies the Nubian desert, and to the W. is the Libyan desert. From 1820 to the Mahdi insurrection of '85 it was Egyptian. Gen. Kitchener took it in 1896. Merowé the cap. of the prov. (pop. 15,000) is situated on the l. b. of the Nile. New Dongola (pop. 16,000) is the chief centre of trade; also a military depot. Old D., a decayed tn., is 75 m. S.S.E. of New D. The Nubian race are the prin. inhabs. of the prov.

Doni, Antonio Francesco (1513-74). It. priest, b. at Florence. In Venice he settled down as a printer and writer, publishing many original works, distinguished rather by their curious conceits and eccentric style than for real worth. *La Morale Filosofica*, and the *Marmi*, both pub. in 1552, are his best known works. In the former, for which he was largely indebted to Firenzuola, he makes his moral teaching palatable by sugaring it with allegories, legends, and fables, whilst in the latter he freely reviles the vices, and especially the superstitions, of the age.

Dönitz, Karl (b. 1892). Ger. admiral, b. in Mecklenburg of a family of ship-owners. At first he served in the cruiser *Breslau*, but transferred to the submarine branch of the service and served for the greater part of the 1914-18 war in U-boats. Took part in many attacks on allied convoys in the Mediterranean until he was captured in 1918 and interned in England. Feigning insanity, he was among the first of the Ger. prisoners to be repatriated after the Armistice. After the outbreak of war in 1939 Hitler chose him to be head of the U-boat service. He had a fanatical faith in the power of the U-boat to gain victory for Germany by destroying the sea-power of the Allies, and his successes in the early months seemed to confirm his optimism. He developed the 'pack' system of attack. But in 1943 the tables were turned and the allies got the upper hand. D. attained the rank of admiral in 1942 and that of grand admiral in 1943, in which year he succeeded Raeder as commander-in-chief of the Ger. navy. On the Ger.

surrender he put himself forward as the successor to Hitler, with the style of Führer. But he was arrested and held for ultimate trial as a war criminal. At the Nuremberg trial he was sentenced to a term of imprisonment for waging aggressive war within the meaning of the word as defined by the charter constituting the court.

Donizetti, Gaetano (1797-1848). It. musical composer, studied music in his native place, Bergamo, and later at Bologna. There is no truth in the story sometimes heard that he was of Scottish descent (Scholes). D. for some time until 1822 served in the army. The opera which made his name was *Anne Bolena*, produced in 1830 at Milan. His *Elixir of Love* (1832) abounds in clear pure sentiment and radiant joy. Altogether he composed sixty-two operas. His *Lucia di Lammermoor*, produced at Naples in 1835, was his greatest success and gained him a professorship of counterpoint in that city. His closing years were saddened by signs of lunacy brought on, it is said, by intemperance. Considering that his rivals were Rossini and Bellini, D.'s contemporary popularity is a remarkable tribute to his talents. *La Fille du Régiment* (1840) is his most popular work, but the finest probably is *La Favorita*, produced, curiously enough, in the same year. In the 'marriage contract' and 'tomb' scenes of *Lucia* and in *Favorita* and *Linda* (1842) he proves himself as gifted a master of melody as Bellini, and a more dramatic master of the concerted number. His melodies demanded capable singers in a period when opera was essentially an exhibition of vocal tone and technique. His last opera, *Catarino Carnaro*, was produced in 1844. D. combined the gift of writing pleasant melodies and composition, peculiarly suited to the voice, with extreme facility, vigour, and some sense of humour, as shown in *Don Pasquale* (1843). He proves his grasp of the orchestra, both in dramatic and comic vein, in the later operas and the overtures to *Favorita*, *Linda*, and *Pasquale*, that to *Favorita* being especially fine, and showing unexpected mastery of form. He became paralysed in 1845. See A. Cametta, *Donizetti*, 1907.

Donjon, see DUNGEON.

Don Juan (It. Don Giovanni), famous figure in legend, whose prototype is found in the Span. play (pub. in 1630), entitled *El Burlador de Sevilla y convidado*, and attributed to Tirso de Molina. Like the Faust of northern legend, D. J. sacrifices everything to self-gratification, but with this fundamental difference that, whereas for Faust self-gratification means intellectual supremacy, for D. J. it is the consummation of all, even the lowest, sensual pleasures. The following is a bare outline of the story, though different versions are found in all European countries, and even so far afield as Iceland. D. J., of the noble family Tenorio, is an abandoned profligate who lived in the days of Peter the Cruel at Seville. When Ulloa thwarts D. J. in his machinations to seduce his daughter, he is promptly

stabbed by the dissolute lover. An arrant disbeliever, D. J. mockingly challenges a stone image of his victim to a banquet in his tomb. The outraged Ullua accepts and thereupon carries his murderer off to the very hell at which he has so exultingly scoffed. This quaint story has been immortalised by Mozart's magnificent music to Da Ponte's libretto. Hence came the inspiration for Mérimée's novel *Les Ames du purgatoire*, Dumas' *Don Juan de Marana*, and Balzac's *Élixir d'une longue vie*. Henry Purcell, however, who used Shadwell's obscene play, *The Libertine* (1676), was the first to write a musical setting whilst Gluck's ballet music is still played. Goldoni, Molière, Espronceda, Flaubert, Landau, and Heyse have all coloured the legend according to their own fancy, but of all later writers Zorrilla, whose *Don Juan Tenorio* has come to be regarded as a national work, may justly claim the distinction of having cast the story into its most popular form. D. J. is introduced into Bernard Shaw's play *Man and Superman*. See O. Rank, *Don Juan*, 1924; L. di Bradi, *Don Juan, la légende et l'histoire*, 1930.

Don-nai, Donai or Dongnai, riv. of Lower Fm. Cochín-China, rising at an altitude of 5000 ft. It receives the Saigon and others, and after a course of 250 m. enters the China Sea in the N. E. of the Mekong delt, which communicates with the riv. by sev. channels.

Donnay, Maurice Charles (1859-1945), Fr. playwright and author, b. at Paris. Among his plays are: *Amants* (1895), *Douloureuse* (1897), *L'Affranchie* (1898), *Le Retour de Jérusalem* (a satire on Max Nordau, 1903), *La Patronne* (1908), *Ménage de Molière* (1912), *Les Éclaircissements* (1913), *La Chasse à l'Homme* (1920), *Le Roi Candale* (1920), *Un Homme léger* (1925), *La Reprise* (1925), *L'Ascension de Virginie* (1929). Of his non-dramatic works *Alfred de Musset* appeared in 1914.

Donne, John (1573-1631), Eng. poet, son of Rom. Catholic parents, connected through his mother's family with Sir Thomas More and with John Heywood, the dramatist. He is quaintly enough the hero of a truly romantic love-story. This is strange because the very glow of his spiritual life, combined with his melancholy and fantastic humours, would seem to leave small room for romance. Both at Oxford and Cambridge he proved an excellent scholar, but his religion, Rom. Catholicism, forbade his taking the oath necessary for a degree. His life-long intimacy with Sir Henry Wotton dates from his Oxford days. At seventeen he began to study law at Lincoln's Inn, and it was at this time that he became a Protestant, finding himself after careful scrutiny more in sympathy with the Anglican than the Rom. standpoint. After a year spent in Italy and Spain, he became Lord Ellesmere's secretary, fell in love with his patron's niece, whom he secretly married, and thus lost his position. D. was imprisoned by his father-in-law, but finally won back his freedom and his wife after a protracted lawsuit which ran away with

nearly the whole of his property. Whilst with Sir Robert Drury in Paris, he saw the phantom of his beloved wife carrying a dead infant in her arms; twelve days later he heard that his wife had at that very time been delivered of a still-born child. With the accession of King James his fortune changed. In 1610, desirous of a place at Court, he made a bid for royal patronage with *Pseudomartyr* (a contribution to the disputes about the Oath of Supremacy and Allegiance), and in 1611-1613 with *Ignatius his Conclave* (an attack on the Jesuits), an *Elegy on Prince Henry* and *Epithalamium* for the marriage of the Princess Elizabeth. So delighted was the king with D.'s polemic against Catholicism (*Pseudo Martyr*, 1610), that he insisted on the author taking holy orders and appointed him his chaplain-in-ordinary. Other honours followed, and at his death, which was hastened by consumption, he was vicar of St. Dunstan's and dean of St. Paul's. The famous angler, Sir Izaak Walton, has left a delightful life of the pious D. In the pulpit he was, according to his biographer, 'always preaching to himself like an angel from a cloud, but in none.' As a poet, Saintsbury justly praises 'the magical illumination of obscure and shadowy thoughts with the lightning of fancy,' whilst Dryden's verdict that he was 'the greatest wit though not the best poet of our nation' is not amiss. But it would be difficult to find a better appreciation than that contained in Ben Jonson's prophetic remarks, that he was 'the first poet in the world in some things,' but that he would perish 'for not being understood,' but there has been a decided revival of interest in D.'s poetry in recent years. The very faintness of his fancy and wealth of erotic fervour are obscured from the ordinary gaze by a host of fantastical conceits, of 'guips and cranks' expressive of far-fetched, if ingenious, imaginings and of wanton deformities, both of wit and metre. To restore poetry to its high seriousness became the chief object of the early seventeenth century literature and this problem produced, among others, the writers whom Johnson and Pope styled 'Metaphysical.' D. and John Cleveland were the chief 'metaphysical' poets, both trying to ennoble poetry by applying it to the phenomena of science and making their muse the handmaid of natural philosophy. D. followed 'nature' as faithfully as Dryden or Wordsworth but 'nature' as conceived by a mystical scientist. D. is the lover and sensualist, but he reviews his love in philosophical terms, or explores it with the images conceived in his scientific and theological reading. 'He can perceive beauty, but at the very moment of that perception, he sees the corpse, the cerement cloths, the skeleton. He knows passion but he can mock at the physical body through which passion is transmitted . . . This frankness in passion, this despair of making a unity out of the broken images of life, have brought him close to some contemporary poets' (B. Ifor Evans) and partly explain the revival of interest in his works. The standard ed. of Donne's poems is that of

H. J. C. Grierson (1912, 1929); and some of his prose works appear in *The Complete Poetry and Selected Prose* ed. by J. Hayward (1929, 1930). Bibliography by G. Keynes (1914, 1932). See lives by Izaak Walton, 1658; H. I. A. Fausset (editor of *Poems in Everyman's Library*), 1924; also Sir E. Gosse, *Life and Letters of John Donne*, 1899; Mary P. Ramsay, *Les Doctrines médiévales chez Donne*, 1917, 1924; Mrs. E. M. Simpson, *A study of the Prose Works of John Donne*, 1924; G. Williamson, *The Donne Tradition*, 1930; C. M. Coffin, *John Donne and the New Philosophy*, 1937.

Donnybrook, old vil. of Ireland, in Dublin co. It now forms a western suburb of the city of Dublin. It is historically interesting. King John estab. yearly fairs, which were held towards the end of Aug. These became notorious for the riotous disorder practised, and were eventually discontinued in 1855.

Donoghue, Stephen (1885-1945), Eng. jockey, born at Warrington, Lancashire. Rode Derby winner in 1915, 1917, 1921, 1922, 1923, and 1925. He retired from racing in 1937 and took up training. Wrote a novel: *The Luck of the Gentle Grafter* (1926), and an autobiography, *Just my Story* (1923).

Donora, tn. of Westmoreland co., Pennsylvania, U.S.A., with manufs. of steel, nails, chemicals, etc. Pop. 13,100.

Donovan, Edward (1768-1837), Eng. natural historian and botanist, was a fellow of the Linnean Society. The results of his considerable labours were pub. in his *Natural History of British Insects*, 1792-1813, and his natural hist. of Brit. birds, 1799-1819; Brit. fishes, 1802-8; and Brit. shells, 1800-4, etc.

Don Quixote, see under CERVANTES.

Donzy, tn. in the dept. of Nièvre, France, 26 m. N. of Nevers. Cardinal Mazarin founded factories here in 1659, and there are Rom. ruins. Pop. 2200.

Doo, George Thomas (1800-86), Eng. line engraver who had the misfortune to live in a time when his art was no longer appreciated. He tried portrait painting in oils, but art-lovers will remember him rather as a fine engraver, remarkable for his faithfulness to the original, his free animated style, and his sensitive lines. His plates of 'Italian Pilgrims,' after Eastlake, are admirable; but his best are those after Correggio's 'Ecce Homo,' and Raphael's 'Infant Christ bearing the Cross.'

Doolittle, Hilda, (b. 1886), Amer. poetess, associated with Ezra Pound and Richard Aldington (her husband) in founding the Imagist school of poets.

Doom, or **Doum**, popular name of *Hyphene thebaica*, a palm-tree of Upper Egypt, clumps of which occur near Thebes. The fruit is about the size of an orange, reddish in colour, and has a spongy, tasteless, but nutritious rind.

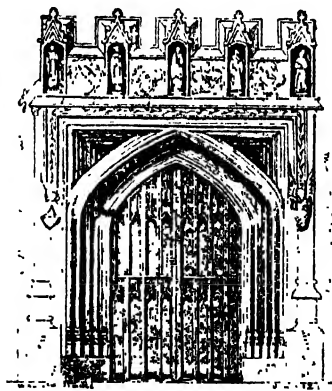
Doomsday Book, see DOMESDAY BOOK.

Doon, lock and riv. of Scotland, in the co. of Ayrshire. The lock is 3 m. S. of Dalmellington; it is 6 m. long and one mile wide, being nearly 700 ft. above the level of the sea. There are several small

is., and it is enclosed by mts. The R. Doon flows through the lock, emptying itself into the firth of Clyde, 3 m. from Ayr. Trout and char abound in both lock and river. The poet Burns immortalised the R. Doon.

Doones, The, were a tribe who lived in Exmoor, Devonshire, England. Very probably these people were descendants of the anct. savage Britons. Their chief home was at Ilagworthy, and they lived by plunder. In R. D. Blackmore's book, *Lorna Doone*, pub. in 1869, the tribe figures largely. They were so dreaded that they were practically rooted out in the seventeenth century by the people of Devon.

Door, in architecture, the filling, usually solid, of a doorway, so constructed that it may easily be opened or shut. The D. and doorway have always been regarded as one of the features of a building upon which architectural ornament should be lavished, and they have generally been made of an imposing nature. In the Egyptian and Assyrian systems the doorway was made of great size and was flanked with colossal statues. In the Gk. and Rom. temples size was also aimed



PERPENDICULAR DOORWAY
Magdalen College, Oxford

at, but when, as in the case of Gk. architecture, the flat lintel was used, it was impossible to span a very large space. The introduction of the arch opened the way to many improvements, and doorways were now generally spanned by this method. All the later architectural systems derived from the Rom. inherited this tradition. In Romanesque architecture the arch is semicircular, ornamented with heavy engravings, the arched head being frequently filled in with a flat stone, so as to make the D. opening rectangular. Among the Gothic styles, it is in France especially that the doorway receives magnificent treatment. The triple portal of Rheims Cathedral is perhaps the most

superb of all. The Ds. themselves are usually constructed of timber adorned with ironwork, though metal was occasionally used.

Doorn, tn. of the prov. of Utrecht, Netherlands, where the ex-emperor of Germany, William II., resided from 1920 to 1941.

Doornijk, see **TOURNAI**.

Dopes, for fuels, see under **MOTOR CARS** and **MOTOR CYCLES**.

Doppler, Christian Johann (1803-1853), celebrated Austrian scientist, b. at Salzburg, chiefly remembered for 'Doppler's principle' (1842). This states (a) that the pitch of a sound is changed if the object emitting it is moving relatively to the observer, and (b) that the light emitted by a moving star is changed in colour as perceived by a relatively stationary observer. Doppler's principle has proved of great value in physics and astronomy.

Dorado, 'the sword-fish,' a S. constellation, discovered by Bayer in 1603, situated in the S. hemisphere between Pictor and Hydrus, and cut nearly in half by a line joining α Argus and ϵ Eridani. Alpha Doradus is a white star of 3.5 magnitude, with a peculiar spectrum. The S. pole of the ecliptic lies near ϵ Doradus, a star of the fifth magnitude.

Dorcas, John (1807-78), miscellaneous writer of Irish parentage, became at an early age a man of letters. In 1869 he was editor of the *Athenæum*, and, later, of *Notes and Queries*. Wrote a number of works dealing with the lighter phases of manners, antiquities, and social hist., often bearing punning titles, e.g. *Table Traits with Something on Them* (1854), and *Knights and their Days* (1856). He also wrote *Lives of the Queens of England of the House of Hanover* (1855) and *The History of Court Fools* (1858), and ed. Horace Walpole's *Journal of the Reign of King George the Third* (1859). His books contain much curious and out-of-the-way information.

Dorat, Claude Joseph (1731-80), Fr. author and poet. He left the career of advocate to devote himself to literature, imitated Voltaire, and contributed largely to *L'Almanach des muses*. He wrote comedies, fables, madrigals, romances, and dramas, but had no very real talent, being merely a 'boudoir poet' of considerable popularity in his own time. Among his plays are: *Zulica*, (1760) and *Adelaide de Hongrie*. His *Réponse d'Abelard à Heloise* gained immediate popularity. Among his poems may be mentioned: *Sélim et Sélima*, *Le Mots de mai*, *Les Tourterelles*.

Dor-beetle, or *Geotrupes stercorarius*, species of Scarabæide frequently found in England, where it is sometimes called the buzzard clock. It is a dung-beetle, not quite an inch in length, and in colour it is a metallic black. In summer evenings it flies about at dusk with a curious droning sound.

Dorcas Society, name given to working parties of ladies, where they make garments for charity. The name is derived from Dorcas (mentioned in the Acts), who made coats for the widows.

Dorchester: (1) Parl. and municipal bor., cap of Dorsetshire, England, situated 140 m. S.W. of London. The tn. is very picturesquely situated. The boulevards, built on the site of the Rom. wall, surround about three-fourths of the tn. and make a delightful promenade. The tn. was an important military station of the Roms. and was called Durnovaria or Durium; Maiden Castle, a Rom. camp, is situated to the S. of the tn. The Rom. amphitheatre at Maumbury is the best preserved Rom. structure in the kingdom. Since 1868 D. returns one member to parliament (previous to 1868, two). There is a Grammar School founded in 1569, but now rebuilt, an almshouse built in 1616, and a museum with the forepaddle of a Pliosaurus, 7 ft. long. Thomas Hardy, the poet and novelist, was born 3 m. from Dorchester at Upper Bockhampton, and he designed the house at Max Gate, Fordington, in which he resided, looking down upon the roofs of Dorchester. Max Gate took its name from an old turnpike gate. Pop. 10,000. (2) A parl. and vil. of Oxfordshire, England, 9 m. E. by S. of Oxford. In A.D. 631 St. Birinus, the apostle of the W. Saxons, here baptised Cynegils, king of the W. Saxons, to whom King Oswald of Northumbria was godfather. Birinus founded a bishopric at D. which lasted for 450 years, until Remigius (1067-1092) transferred it to Lincoln. The Abbey Church is a very remarkable building with many interesting tombs. There is a missionary college for twenty-six students, a Rom. camp, and an anct. Brit. earthwork. Many Rom. coins have been found. Pop. 770. (3) Dist. of Boston, U.S.A., containing two of the oldest houses in New England and a burying ground dated 1631. It was founded by 140 colonists from Dorsetshire, England, encouraged thereto by Rev. John White, of Trinity par., Dorchester. See W. D. Orcutt, *Good Old Dorchester*.

Dordogne, (1) dept. in S. France, comprising almost wholly the basin of the R. D., formed from the anct. provs. of Périgord and part of Limousin and Angoumois. The surface of the dept. is hilly and well wooded, and the valleys are remarkably beautiful and prolific. Vineyards abound on the gentle slopes of the hills, where the vines are trained on the branches of the elm and walnut trees. Chestnut trees are abundant; the yield of chestnuts is immense and contributes largely to the food-supply of the inhabs. of the country, and provides food for hogs. Wheat, peas, beans, and maize are also grown. The choice truffes of Périgord are a product of the soil. Iron, coal, and manganese mines are worked, and there are many important foundries. In July 1940 a new series of grottoes with magnificent prehistoric wall-paintings of animals was discovered at Lascaux near Montignac sur Vézère, in the D., in an area very rich in prehistoric remains. The find was made not far from the Les Eyzies, the centre from which are usually visited the prehistoric sites of Cro-Magnon and Le Moustier, both of which

have become scientific names for palaeolithic types of man. These newly-discovered paintings would seem second only to those of Altamira, in Spain. Evidently they were paintings from what must have been, some twenty or thirty thousand years ago, one of the great centres of religion and magic of Aurignacian man untrod by any human foot for a period five times as long as the whole of recorded hist. In the cave were found the painter's lamp of hollowed stone and the pestle and mortar in which he crushed his three colours, ochre, red peroxide of iron and black manganese. There were some 600 different pictures of animals—wild cattle, wild horses and deer. A certain number of objects, possibly hunting devices, are also shown in the pictures. Périgieux is the cap. of the dept. which has 4 arrons: Périgueux, Bergerac, Nontron, and Sarlat. The area is 3561 sq. m., and the pop. 387,600. (2) Riv. of France, which rises in the Puy de Sanoy, Puy de Dôme, and flows through Souillac, Bergerac, Castillon, Libourne and Cubzac to join the Garonne at Ambès, a distance of 306 m. See A. H. Brodrick, *The Caves of Lascaux*, 1948.

Dordrecht (popularly called **Dort**), seaport on the Merwede, 12½ m. by rail S.E. of Rotterdam, in the prov. of S. Holland. Intersected by a number of canals which greatly facilitate communications, it is engaged in many industries, such as ship-building and engineering, and also manufs. But Rotterdam has diverted a great part of the traffic which made it the richest and most important trading town of Holland and a member of the Hansatic League. It still retains many quaint thoroughfares and gabled houses. The original residence of the counts of Holland, it witnessed in 1572 the declaration of independence of the United Provs., and in 1618-19 the famous synod which anathematised Arminius' heresies. Pop. 54,000.

Doré, Louis Auguste Gustave (1832-83), Fr. painter and illustrator, b. at Strasburg, drew first for the *Journal Pour Rire*, 1848, and later for the *Journal Pour Tous*. His drawings show genius for grotesque and humorous illustration as also fertility of invention and preference for the fantastic. He illustrated an ed. of the Bible, and among other works were Balzac's *Ces Cent Contes Drôlatiques* (1837); trans. into Eng. as *Droll Stories collected from the Abbays of Touraine* (illustrated with 425 engravings by D., 1874); Dante's *Divina Commedia* (1863-66); Milton's *Paradise Lost*, 1866; Tennyson's *Idylls* (1867-68); La Fontaine's *Fables* (1867); and Rabelais' *Gargantua and Pantagruel*. As a sculptor he is remembered for his statue of Dumas, in Paris, whilst he was ambitious for fame as an historical and religious painter. In the Luxembourg hangs his 'Tobit and the Angel', whilst the Doré Gallery in London was long decorated with his huge canvases depicting 'Christ leaving the Prætorium', 1887-72, etc. See B. Roosevelt, *Life and Reminiscences of Gustave Doré*, 1885; and life by M. Rose (ed. J. Laver), 1945.

Dorema, genus of Umbelliferae, *D. ammoniacum* is found in dry plains and gravelly soil, exposed to the burning sun in Persia; it yields the gum ammoniacum used in medicine.

Dore Monts, volcanic mt. group of France, belonging to the Auvergne system, and situated in the dept. of Puy-de-Dôme. The chief heights of all are in this group, and include the Puy-de-Sancy, which has an elevation of over 6000 ft.

Doria, Andrea (1468-1560), Genoese nobleman, b. at Onigila, who, like his ancestors, entered on a military career. First served under various It. princes on different expeditions; he next entered the service of the Fr. king Charles I., and eventually became high admiral of the Levant. Later on, resigned his command of the fleet, as he feared for the safety of Genoa, which was threatened by the Fr. In 1528 D. expelled the Fr. from the garrison of Genoa, and refusing a sovereignty, ruled the city on republican lines. He was very active in his attacks against sea pirates, and was styled 'father and liberator of his country'.

Dorians, are, like the Ionians and the Æolians, one of the chief peoples in historic Greece. In Hellenic times the whole of the Peloponnese, except Elis and Achæa, Doris in N. Greece, together with Megara and Ægina, the is. of Crete, Rhodes, Chidus, Melos, Thera, etc., and the S. shores of Sicily, colonised from Corinth, etc., were inhabited by D. Legend says that Dorus, son of Hellen, the founder of the race, settled in Doris before 1100 B.C. Archaeologists conclude that about 1100 B.C. rude D. invaders overthrew the Achæan civilisation described in Homer, which in its turn had supplanted the Mycæan. Compared with Ionians, the D. were harder, rougher, simpler, more conservative, and aristocratic—a truth to be appreciated alike in their stern and majestic architecture, their archaic unhallowed dialect (retained in the choruses of Attic drama), and the customs and constitution, for instance, of Sparta, where the Helots were jealously kept in their servile condition, and where the rigid martial discipline of Lycurgus prevailed.

Doric Dialect, The, was spoken in Hellenic times in every region where Dorians (q.v.) settled. The broad features which distinguish it from Ionic are -μεν for -μεν in first person plural; -αι and -αν for η; -α for ἄρ, and -αω, -αω, and -ω as ending for the first person of the future. The Dorians invariably claimed a greater antiquity for their dialect than Ionic, a fact which probably accounts for the archaic Doric, which appears as an anachronism in Attic drama. Pindar wrote in Doric.

Doric Order, earliest and most characteristic type of Gk. architecture, of which the Parthenon at Athens is a fine example. The Doric column is a massive fluted pillar imposing in its severity and absence of adornment; base and mouldings are absent from the foot of the column; the capital is plain and corn-

posed of merely an echinus, abacus, and triglyphed frieze.

Dorigny, Sir Nicholas (1657-1746), Fr. engraver. From 1711 to 1719 he worked for Queen Anne at Hampton Court, engraving the cartoons of Raphael. Heaviness of outline, hard contrasts, and excess of vigour mar most of his reproductions of It. paintings, but his 'Transfiguration' after Raphael is good.

Dorion, Sir Antoine Aimé (1816-91), Canadian statesman. He became leader of the Liberal party, and was the first to enunciate clearly the principle of federation as applicable to his country. As minister of justice in the Mackenzie gov. he passed the Electoral Law (1874), and the Controverted Elections Act. In 1874 he was appointed justice of the prov. of Ontario.

Doris, or Archidoris, important genus of nudibranchiate molluscs, is typical of the family Dorididae. The species are usually a white, brown, or yellow colour, whence they are called sea-lemons, but they often take to themselves the colour of their surroundings. *D. pilosa* and *D. tuberculata* are well-known members of the genus.

Doris, in anct. geog., mountainous dist. of Central Greece. It was surrounded by Phocis, Locris, Ætolia, and Malis, and it contained the sources of the Cephissus. The Dorians named this ter. as their home. It is now included in the gov. of Phocis.

Dorking, mkt. tn. in Surrey, England, 6 m. W. of Eigate and 29 m. S.W. of London. It is picturesquely situated on the N. Downs and within a small radius are some of the most beautiful spots of Surrey. The tn. is famous for its poultry. D. fowls are noted for their fine eggs and fine quality of flesh. Pop. 10,100.

Dormer, or Dormer Window, of which the Hôtel de Ville in Rouen furnishes a splendid illustration, is a little window set in a projection built out from a sloping roof. After 1350 dormers appear in Gothic domestic architecture.

Dormitory (Lat. *dormitorium*, a sleeping place) was the name given to the sleeping quarters of monks. In most monasteries the Ds. were on the ground floor, giving easy communications with the Church, though sometimes they formed the upper story of the cloisters. Sometimes they were long halls, but more often a series of cells or cubicles. To-day the name is applied to large bedrooms in schools, etc.

Dormont, residential borough of Pittsburgh, Pennsylvania, U.S.A. Pop. 12,900.

Dormouse, name given to members of the rodent family Gliridae, consists of small, arboreal animals living in the Old World. The eyes and ears are large, the tail is long and hairy, and the intestine has no cæcum. The animals are squirrel-like in habit and diet, but they are nocturnal. *Muscardinus axellanus*, the common D., is found all over Europe, and is remarkable for its winter sleep, the period of time during which it hibernates being about six months. *Myoxus glis*, the fat or squirrel D., is an allied European species.

Dornbirn, tn. of Austria, in the prov. of Vorarlberg. It is situated on the R. b. of the Dornberger Ach, near the Lake of Constance. It is an important centre of industry, and the most densely populated tn. in Vorarlberg. There are iron-works, cotton factories, dye-works, etc. Pop. 14,000.

Dornburg, tn. of Thuringia in Germany. It is situated on the l. b. of the Saale, 14 m. E. of Weimar. It possesses three castles. The Altes Schloss was frequently used as a residence by the Emperors Otto I. and III. The Neues Schloss was built in the It. style of architecture, in 1748. Goethe visited here as a guest. The third castle is a modern palace. Pop. 1000.

Dornoch, par., royal, and police burgh, seaport, and cap. of the co. of Sutherlandshire, Scotland. The tn. is situated on the N. of Dornoch Firth, 14 m. E. of Bonar Bridge, and 8 m. S.E. by S. of Mound Station. In pre-Reformation times it was the see of a bishop, and Gilbert de Moravia, who died in 1245, and was the last on the calendar of Scottish saints, built a cathedral, which was restored in 1837 by the second duke of Sutherland. The last execution for witchcraft in N. Britain took place here in 1722. Skibo Castle, about 4 m. from D., belongs now to Mrs. Andrew Carnegie. The golf links in the vicinity of D. are very fine. Pop. of par., 2500; tn. 720.

Dorohol, or Dorogol, tn. of Rumania. There is considerable trade in dairy and farm produce, also timber. A noted ann. fair is held in June. Pop. 16,000.

Doronicum, or Leopard's Bane, genus of bright orange composite plants found in Europe.

Dorpat, see TARTU-DORPAT.

D'Orsay, Alfred Guillaume Gabriel, Count (1801-52), the second son of Gen. Count D'O., served in the Fr. army until 1822, when, after a tour of the continent with the earl and countess of Blessington, he came to England. Though married to a daughter of Lord Blessington by his first wife, D'O. was on very intimate terms with Lady Blessington, and was always to be found at Grosvenor House. Exceptionally handsome, the most admired man of the day, he was a leader of the dandies, though he never had the sway of Beau Brummell. During his twenty years' residence in this country he executed a series of admirable drawings of his most noted contemporaries. Bankrupt in 1849; went to Paris, where he died three years later. Having some pretensions to art as a painter and sculptor, he was appointed Director of Fine Arts in Paris by Louis Napoleon after the coup d'état, but he did not live to fill the position. There is a biography of D'O. by W. Teignmouth Shore.

Dorset, Charles Sackville, Earl of Middlesex, sixth Earl of Dorset (1638-1706), son of Richard Sackville, fifth earl, and grandson of the first earl of Middlesex. In Charles II.'s first parliament he was M.P. for E. Grinstead, and in 1685 joined an expedition against the Dutch. The early part of his career, however, was spent in pleasure and dissipation. He

had no prominent place at court during the reign of James II., but was reinstated on the accession of William III. The only work by which he is remembered is his poem, *To All You Ladies now on Land*.

Dorset, Thomas Sackville, first Earl of (1536-1608), b. at Buckhurst. He collaborated with Thomas Norton in the writing of the first tragedy in blank verse, *Gorboduc*, founded on the Senecan model, and noteworthy on account of its purity of style. About the year 1567 Sackville was created Lord Buckhurst and shortly after that entered the diplomatic service in France. He was made a K.G. in 1598, and ten years later was appointed Lord High Treasurer, which office he held till his death. He also wrote the *Induction to the Mirror for Magistrates* (1563).

Dorsetshire, maritime co. on the S.W. of England, between Devonshire and Hampshire, the cap. being Dorchester. Open downs, affording excellent sheep pasturage, are the salient features of its undulating surface. To the E. the beautiful coastline is broken by Poole Harbour, to the S. of which lies the peninsula known as the Isle of Purbeck. Chesil Bank, which ends in Portland Bill, is a remarkable stretch of shingle connecting the Isle of Portland with the mainland at Portland Roads, where a harbour of refuge has been constructed with the help of huge breakwaters. The prin. streams are the Stour, flowing S.E. into Hants, and the Frome and Piddle, which enter Poole Harbour. Agriculture is the chief industry, the country being noted for its excellent dairy produce, whilst the industry second in importance is quarrying. The white freestones of Portland are well-known to builders, and the coarse marbles and white pipeclay of Purbeck are also in great demand. Gillingham and Sherborne in the N. are on the former Southern main railway line, branch lines serving Dorchester (12,000), Swanage, Weymouth (24,570), and Portland (4400), etc. Bridport, Lyme Regis, Swanage, Weymouth, and Poole (78,000) are the chief seaports. The fine ruins of Corfe Castle and Wimborne Minster, Milton Abbey and the abbey church of Sherborne, possess considerable antiquarian interest, and remains of immense reptiles have been unearthed at Lyme Regis. The total acreage of the co. is 622,800; pop. 282,700. See A. de Selincourt, *Dorset*, 1947.

Dorsetshire Regiment, The, formerly the 39th and 54th Foot. The 39th was raised in 1702, and after service in Europe went to India in 1754, being the first King's Regiment to serve in that country, a fact which is still commemorated in its motto 'Primus in India.' The 54th was raised in 1755. Towards the end of the eighteenth century William Cobbett was regimental sergeant-major of the 54th. The Dorsetshire Regiment has a long roll of battle honours, and its battalions served on many fronts during the First World War. The 2nd Battalion was with General Townshend at Kut-el-Amara, and was taken prisoner at the capitulation; another 2nd Battalion was raised

to take its place. In the Second World War the D. R. fought in N.W. Europe, taking part in the Battle of Normandy and the advance to the Rhine. Other units were part of the British forces in Burma.

Dorsten, tn. of Westphalia, Germany, situated on the Lippe, 35 m. S.W. of Münster. Pop. 9000.

Dorstfeld, small tn., Westphalia, Germany. It is situated 2 m. N.W. of Dortmund, and there are collieries in the vicinity. Pop. 4500.

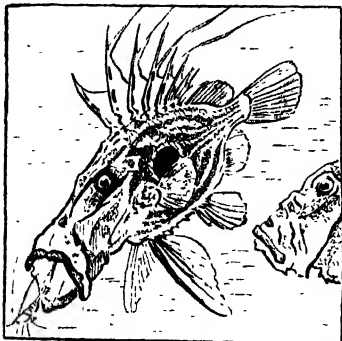
Dori, see DORDRECHT.

Dortmund, before the Second World War, was the most important tn. in Westphalia, Germany, with 542,000 inhabs., being the centre of a great mining dist., with numerous foundries. There are extensive beds of iron ore. It was a free, fortified Hanseatic tn., but later the site of the walls was occupied by promenades. Its monumental buildings included the thirteenth-century Reinoldi kirche, the Marien kirche of the twelfth and the Propstel kirche of 1331-1354. Its municipal museum contained prehistoric Rom. and Westphalian collections. D. was frequently the target of Allied air attack in the Second World War: notably on May 23, 1913. Before that time, a pall of smoke from factories and haze covered the city for nine days out of ten. After the raid D. was absolutely clear of industrial smoke. The catastrophe of D. was greater even than that of Essen. In March 1913, more than 5000 tons of bombs were dropped on the tn. in one of the biggest, if not the biggest, daylight air attack of the war. This attack was carried out by 1000 aircraft of the R.A.F., the majority being Halifaxes and Lancasters, the rest being escorting Mustangs and Spitfires. Previously to this raid, there was a daylight attack on Nov. 29, 1941, but on a small scale, and a night attack on Feb. 20, 1945, when it was estimated that nearly half the tn.'s total acreage suffered damage or destruction.

Dortmund-Weser-Ems Canal, a canal of Germany which unites the Westphalian coalfield via Münster to the seaports of the North Sea. Between 1892 and 1899 the R. Ems was canalised for 43 m., and this was the nucleus of the present canal, which is 169 m. long; 108 m. of which were excavated. The canal has a width of 98½ ft. at the surface, 59 ft. at the bottom, and a depth of 8 ft. 2 in. The cost was about 3½ million pounds. The R.A.F. frequently damaged the canal in the Second World War. They drained it for the second time on Nov. 4, 1944, by breaching the embankment and they repeated this on Nov. 21. Again on Jan. 1, 1945, Lancasters once again breached the repaired canal, and, ever vigilant, attacked yet again on March 3. After that the Allies controlled the canal sending an airborne force across on April 1 for Osnabrück.

Dory, or *John Dory*, the *Zeus faber*, a species of *Zeldæ* allied to the halibut and other flat-fishes. It is a marine fish found in temperate seas of the Old World, and is valued highly as a food. The body is

laterally compressed and about 1½ ft. in length, and the general appearance is very unprepossessing. During the breeding season it utters curious sonorous noises. J. D. is probably from the Fr. *jaune dorée* (yellow gilded), a reference to the metallic lustre of the fish.



JOHN DORY

Dórah (Arabic, treading), a religious ceremony performed by the dervishes of the Sa'di order in Cairo. The chief, or sheikh, of the order rode on horseback, allowing his horse to tread upon the bodies of the dervishes who were lying down, and who were said to be unhurt by the hoofs of the animal. The ceremony was abolished in 1884.

Dos Hermanas, tn. of Andalusia, Spain. Manuf. olive oil and textiles. Pop. 10,000.

Dospad Dagb, see RHODOPE MOUNTAINS.

Dossi, Dosso and Battista, brothers, and painters of the It. school. Battista D. (d. c. 1548), who worked with his brother, was the landscape painter, while Giovanni di Nicolo di Lutero (c. 1479-1542) (as his real name was) painted the figures. Both these brothers seem to have been pupils of Lorenzo Costa, and they also spent some time in Venice together and probably also in Rome. These painters, whose work is notable for its beautiful colouring and originality, are mentioned by Ariosto in his *Orlando Furioso*. Many of their paintings are in the gallery at Ferrara and in the palace there, as they were employed by the duke. Among their works are: 'St. John at Patmos,' 'Alice,' and 'The Hours of the Day,' the latter in the Ferrara Palace.

Doss-megen-ora Mountains, the highest points in the Boro-khoro Mts. of the Tian Shan group of Central Asia. They rise to a height of 20,000 ft.

Dost Mohammed (c. 1798-1863), the brother of the vizier of Mahmud Shah. For a time he had complete power in Kabul, but was eventually compelled by the Brit. to surrender. See AFGHANISTAN.

Dostoevsky, Fedor Mikhailovich (1822-81), one of the giants of Russian literature

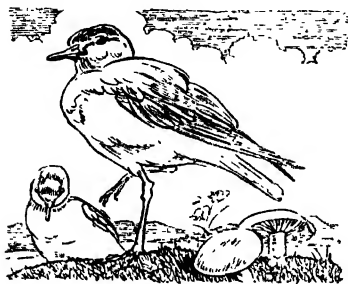
and one of the greatest novelists of all time, b. Nov. 11, at Moscow, son of a military surgeon. He had a troubled childhood, due to epilepsy, of which he was a sufferer all his life, and which had much to do with the mysticism, mingled with religious ecstasy and humanitarian pity and pardon for the lowly and the outcast, which was to mark his great works. He went to the St. Petersburg engineering school and made good progress, but had already shown that his love for writing was greater than his desire to be an army officer. In 1846 his first work *Poor Folk*, appeared, and gave him considerable celebrity in his own country. In 1849 he was arrested for alleged association with a revolutionary band. He was sentenced to death, and endured a horrible moment expecting to be shot, but he was reprieved and sent to Siberia, where he spent four years of misery. His confinement among criminals and political outcasts was to furnish him with boundless material for his later works. After serving a certain time in the army, he wrote *Memoirs of a House of the Dead* (1861-62) which was drawn from his own life. In a momentary period of comparative affluence he spent some time travelling in Europe, but was incurably Slav and gladly returned to his own country. Turgenev was the brightest star in the Russian galaxy then, and also had a great reputation abroad. Dostoevsky never forgave him for being too Europeanised. In 1866 he wrote one of his greatest works, *Crime and Punishment*, filled with the peculiar Russian pity for the outcast, even the murderer. All the rest of his life he struggled with his epileptic ailment and with spells of grinding poverty. Like Balzac, he sat at his writing-table penning immortal novels in the endeavour to keep the wolf from the door. At one time he wrote that he had a notion to hang himself. He could neither pay his debts, he said, nor travel. Gradually, however, he retrieved his fortunes by hard work, and made a marked success with his novels. He died on Jan. 28, and was given a public funeral. Some of his other notable novels are *The Idiot* (1868), *The Possessed* (1871), and *The Brothers Karamazov* (1879-80) his last major work. Dostoevsky understood Russia and the Russians as few writers of his country have done. Nietzsche, not given to praise, said he was the only man who had taught him something of psychology. He was less touched by European influences than any other great Russian writer, and appreciation of him has not only increased abroad, but has largely influenced all the writing of his country since his death. Despite their enormous length, his major novels have been translated into all modern languages and have had a considerable influence on European fiction. In the Second World War the Gers. looted and destroyed D.'s house during their occupation of Staraya Russa. See monographs by J. Middleton Murry, 1916, 1923; J. Lavrin, 1920; A. Glde, 1925, 1949; A. J. Meier-Graefe, 1928; E. H. Carr, 1931; A. Yarmolinsky, 1934;

S. S. Smith, 1935; H. Troyat, *Firebrand*, 1947; S. Mackiewicz, *Dostojewsky*, 1918.

Dot, in music, is a mark which is placed after a note and increases its duration by one half. When the D. is placed over the note it indicates a short staccato tone.

Dothan, city of Henry co., Alabama, U.S.A., about 120 m. S.E. of Montgomery. It has iron-works and cotton mills and many diverse manufs. Pop. 17,100.

Dotterel, or *Eudromia morinellus*, a limicoline bird of the plover family, or Charadriidae. Its home is N. Europe and Asia, but in Britain, e.g. in the Lake District and the Scottish mts., it is approaching extinction owing to the custom of



DOTTEREL

shooting the birds during the breeding season to ensure the delicacy of their flesh. The general colour is ashy-brown, with white and black markings, and the three eggs which are laid in hollows of the ground, are pale green with brown marks.

Dou, Dow, or Douw, Gerrit or Gerard (1613-75), Dutch genre painter, b. at Leyden, at an early age became a pupil of Rembrandt, from whom he acquired the art of beautiful colouring. He soon, however, gave up portrait painting and devoted his time to scenes of everyday life. His pictures reveal his close study of nature and are remarkable for their delicacy and finish. They number in all about two hundred, 'The Woman with the Dropsy,' in the Louvre, being his masterpiece. Other well-known ones are 'The Poulterer's Shop,' portrait of himself and 'The Evening School.'

Douai, tn. and arron. in the dept. of Nord, France, 15 m. E.N.E. of Arras, on the Scarpe and the Canal de la Sensée. The tn. of D. is industrial with ironworks, and refineries, breweries and trading in coal and corn. It possesses old houses, a belfry of the fourteenth to fifteenth centuries, the remains of an abbey, now the courts of justice, a museum and libraries. The Academy was transferred to Lille in 1880. In the fourteenth to fifteenth centuries D. was famous for its tapestries. The Douai Bible, the authorised Eng. version for Catholics, was issued here. The school was moved to England in 1903. Pop. (tn.) 37,200; (arron.) 197,000. D.

was occupied by the Allies on Sept. 1, 1944.

Douarnenez, fishing tn. of W. France, in the dept. of Finistère, and the arron. of Quimper. The sardine and mackerel fisheries are important. Other industries are boat-building, net- and rope-making. Pop. 20,500.

Douaumont, Fr. vil. in the dept. of Meuse and the name of the first of the outlying permanent forts of Verdun. It was attacked by the Gers. in the First World War on Feb. 25, 1916, the Brandenburger troops losing a great number of men. This supreme assault, witnessed by the Kaiser from a distant hill, captured the fort on that day, the fort itself being then in ruins; but the D. hill, nearly 400 metres high, was still held. Gen. Pétain arrived at the fall and reorganised the demoralised defence. For many days a great battle raged round the ruins of the fort and the vil. of D., and by March 1 the Ger. defence of the position had given way before the Fr. counter-attack. Large reinforcements reached the Fr., and the vital defences of Verdun remained intact (see VERDUN). Later in March and in April ruined D. changed hands several times, the Ger. Crown Prince striving to capture Pepper Ridge in order to turn the D. position, but the repulse by the Fr. at that hill finally determined the failure of the Ger. blow at Verdun. In Oct. of the same year (ten. Nivelle) recovered both Fort D. and Vaux village in a furious attack on the E. bank of the Meuse.

Double-Base, or **Base** (music), see under VIOLIN.

Double Bassoon, see under BASSOON.

Double Entry, see under BOOK-KEEPING.

Double-Flowers are a product of cultivation, in which the stamens and pistil have been replaced by petals, and the plant is therefore incapable of producing seed. No plant in the wild state is found double, but the cultivated form which is most popular is often the double one, e.g. rose.

Double Refraction, name applied by physicists to the splitting up of a ray of light incident on a crystal of calcite into two refracted rays. The phenomenon was first described by Erasmus Bartholinus in 1669, who was led to its discovery by observing that when objects were viewed through certain transparent crystals of Iceland spar two images of each object were seen. If a pencil mark is made on a sheet of white paper and a crystal of calcite is placed upon it, two images of the pencil mark are seen. On rotating the crystal, one image remains stationary while the other revolves in a circle about it. The stationary image is called the ordinary image, while the moving image, which is always displaced in the direction of the shorter axis of the rhombic face of the crystal, is called the extraordinary image. When a beam of light falls obliquely on a crystal of calcite the two rays into which it divides are called the ordinary ray and the extraordinary ray. The ordinary ray obeys the laws of refraction in the usual way, but the extraordinary ray departs from

the plane of incidence, and the ratio of the angles of incidence and refraction which it makes with the face of the crystal is not constant. The two refracted rays are found to be polarised in perpendicular planes.

Double Vision, see *under* **EYE**.

Doublings, term used in heraldry, and is applied to the linings of state robes, or mantles, or to mantlings.

Doubling the Cube, problem which originated in early Gk. times, and was one of the three great problems studied by the early mathematicians. Hippocrates, Archytas, and others solved the problem, though its solution could not be obtained by simple geometry, but necessitated a more advanced knowledge. There are various traditions as to how the question arose, one of them being an attempt of the Delians to double a cubical altar, so that it is sometimes known as the Delian problem.

Doublon (Sp. *doblon*, double), gold piece, once coined in Spain and Sp. America, worth two pistoles. Up to 1848 its value was £3 4s. 8d., but the 'Doblon de Isabel,' which entered the currency in that year, was worth £1 0s. 8d. only.

Doubs, an E. frontier dept. of France, once part of the duchy of Burgundy and later of *Franchie Comté*, served by the Paris-Lyons and the Dôle-Switzerland railways. Bounded on the N. by Belfort and Haute Saône, on the E. and S.E. by Switzerland, and on the S.W. and W. by Switzerland, it falls naturally into three zones. The plain region between the Ognon (on the W.) and the R. Doubs is the most fertile, producing wheat, oats, and other cereals, besides vegetables, hemp, fruits, and vines in abundance. The second region, mostly given to pasturage and forests, covers the central dists., whilst the third is very mountainous, being crossed by four parallel chains of the Jura in the direction N.E. to S.W. Mont d'Or (4800 ft.) in the eastern-most ridge is the highest peak. The chief exports are watches (manufactured at Besançon, the cap., and Morteau), hardware (at Hérimoncourt and Valentigney), iron (from foundries at Audincourt), livestock, vegetables, and wine. Building-stone and rock salt are the only noteworthy minerals. Besançon, Pontarlier, and Montbéliard are the 3 arrons. Pop. 298,200, the area being 2052 sq. m.

Douce, Francis (1757-1834), Eng. antiquary, published his curious *Illustrations of Shakespeare* in 1807, and his *Dance of Death* in 1833. A contributor to the *Archæologia* and *Gentleman's Magazine*, he bequeathed at his death a valuable collection of books, illuminated manuscripts, coins, etc., to the Bodleian Library.

Doughty, Charles Montagu (1843-1926), Eng. traveller and author, son of a clergyman, b. at Therberton Hall, Suffolk. Educated for the navy, and, later, at King's College, London, and at Cambridge Univ. He travelled widely in three continents, Europe, Africa, and Asia. His most memorable journey, begun in 1876, was through parts of Arabia unexplored by Europeans up to that time. Author

of *Travels in Arabia Deserta* (1888) and much poetry of an austere vein, the best known work being *The Dawn in Britain* (1906). Other vols. of poetry were *The Cliffs* (a play in verso, 1909) and *The Clouds* (a poetic drama, 1912). See D. G. Hogarth, *The Life of Charles M. Doughty*, 1928; B. Fairley, *Charles M. Doughty: A Critical Study*, 1927.

Douglas (1) cap. of the Isle of Man, and a popular seaside resort, situated 80 m. N.W. of Liverpool and 62 m. W.N.W. of Fleetwood, with both of which it is in regular steamer communication. D. has grown up round a splendid bay in the E. of the island, at the confluence of the Awin-Dhov and Awin-Glass. A fine esplanade encircles the bay from Derby Castle on the N. to Douglas Head on the S., N. of which lies the harbour, the first in the world to be equipped with radar to aid navigation. D. is served by steamers crossing in the season to Barrow, Dublin, Belfast, and Glasgow; by trams, and by the Isle of Man railway, connecting it with Peel, Castletown, and Port Erin. It has public buildings (including the House of Keys), a free library and a great number of attractions for its visitors, who exceed half a million from Easter to Oct. Pop. 19,300. (2) Vil. of Lanarkshire, Scotland, and, formerly, a place of some importance. It has a ruined castle (Scott's *Castle Dangerous*). Pop. 1500.

Douglas, city of Arizona, U.S.A. with copper and lead smelters. Pop. 8600.

Douglas (Gaelic, *dubh glas*, black water), the name of a Scottish family. **William of Douglas** is the first one of this family of whom anything definite is known, and of him there are records between the years 1175 and 1213. He was succeeded by his son, *Sir Archibald*, who died about the middle of the thirteenth century. *Sir William of Douglas* (d. 1298) ('le Hardi') was the grandson of the former. He rose against Edward I. in 1297, for which he was imprisoned and died in the Tower the following year. *Sir James of Douglas* (1286-1330), known as the 'Good' Sir James, was his son, and bore the title lord of Douglas. During the life of Robert Bruce, D. was his firm supporter, sharing the command at Bannockburn, and being successful in many border raids, till his name the 'Black D.' roused terror among the people. After many deeds of daring, he set out in 1330, according to Bruce's request, to carry the heart of the latter to Palestine, and was killed on the way. *William D.*, his son, died at the battle of Halidon Hill, and *William D.*, first earl (1327-84), became owner of the estates through his uncle Hugh, and was made earl of Douglas about 1358, and became earl of Mar by his marriage. His son, *James, Earl of Douglas and Mar* (d. 1388), succeeded him, and fell at the battle of Otterburn. As there was no direct heir to the estates, *Archibald D.* (c. 1328-c. 1400), a natural son of Good Sir James, became the third earl. He in his turn was succeeded by his son *Archibald* (c. 1369-1424), who was made a prisoner at the battle of Homildon Hill and at Shrewsbury. He afterwards became duke

of Touraine, and was killed at the battle of Verneuil. His successor was his son *Archibald*, fifth earl (c. 1391-1439). *William*, his son and heir, was murdered with his brother in Edinburgh Castle, 1440, by order of Sir William Crichton. The estates then passed to *James D.*, their great-uncle, known as the 'Gross.' His son *William*, eighth earl (c. 1425-52), was murdered by James II. in Stirling Castle, and *James* (1426-88), his brother, became the ninth earl. He proceeded at once to war with James on account of the murder of his brother, but had to surrender. His brothers identified themselves with his cause, but were defeated by the earl of Angus, another branch of the D. family who were coming into prominence. The lands of the D. branch were given over to the fourth earl of Angus, known as the 'Red D.' *Archibald*, fifth earl of Angus (c. 1449-1514), called 'Bell-the-Cat,' was succeeded by *Archibald* (c. 1489-1557), his grandson, who married Margaret, sister of Henry VIII., king of England, and their daughter Margaret was the mother of Lord Darnley, father of James VI. This earl of Angus was for a time extremely powerful in Scotland, but was eventually compelled by James V. to relinquish that power. His successors were *David*, seventh earl, and *Archibald*, eighth earl, the estates then passing to another branch, *William D. of Glenberrie*, ninth earl. In 1633 his grandson *William* (1589-1660), the eleventh earl, was made marquis of Douglas, and his son became the third duke of Hamilton by his marriage. *James D.*, second marquis (c. 1646-1700), and grandson of the first marquis, was succeeded by his son *Archibald* (1694-1761), first duke of Douglas, but as he had no heirs the title died with him. About the year 1760 one of the twin sons of Lady Jane D., sister of the duke, became the heir to the estates in spite of his right having formerly been disputed, and in 1790 became baron D. of Douglas, being raised to the peerage. He was succeeded in turn by his three sons, and when the fourth baron D. died, the earls of Home became the next heirs. The dukes of Hamilton, Buccleuch, and Queensberry, as well as the earls of Morton, Home, and Wemyss, are members of this family. See D. Hume of Godscroft, *The History of the House of Douglas and Angus*, 1644; Sir W. Fraser, *The Douglas Book*, 1885; and H. Maxwell, *History of the House of Douglas*, 1902.

Douglas, Lord Alfred Bruce (1870-1945), Eng. poet, third son of eighth marquess of Queensberry. Educated at Winchester and Magdalen College, Oxford. In London he became known as the close friend of Oscar Wilde and a member of his circle. In his *Without Apology* (1938) and his *Oscar Wilde: A Summing Up* (1940), he returned, with candour and generosity, to the subject of his former friend as if unable to rid himself of the obsession of the past. But when that is forgotten, it is probable that some of his literary work will be remembered with the best that has been written by his contemporaries. His serious verse is seen at its best in his

sonnets and he also wrote some of the best nonsense verse in the Eng. language—*Tales with a Twist* and *The Placid Pug* are typical of this verse. In his *Belgian Hare* he showed that a gaiety less satirical than good-hearted was also within his powers. His first book of poetry was *The City of the Soul*, pub. in 1899. Twenty-five years later came his *In Excelesis* (1924), written in prison as was its counterpart Oscar Wilde's *De Profundis*. This work seems to shew that great poetry was within his powers but that he did not use them; yet he left more than mere *elegantia* and he was at his best, perhaps, within the rigid limits that he could set to the strictest of forms—the Petrarchan sonnet. See W. Freeman, *Lord Alfred Douglas*, 1948.

Douglas, Sir Andrew Snape (1761-97), Brit. naval officer. In 1781 he commanded the *Chatham* and captured over fifty Fr. vessels. He was appointed flag-captain of Lord Howe's flag-ship the *Queen Charlotte*, and was dangerously wounded on the 'glorious first of June,' 1794. He recovered sufficiently to take part in the victory off L'Orient in the following year, but died two years later.

Douglas, Sir Charles (d. 1789), Brit. rear-admiral. Made commander in 1759, he was sent out to defend Quebec in 1776, and was present at the battle of Ushant in 1778.

Douglas, David (1798-1831), Scottish traveller and botanist, was born at Scone, Perthshire. He was originally a gardener, but in 1823 went to the U.S.A. on a commission for the Royal Horticultural Society, and on his second journey to America about two years later he made several discoveries of plants, among them the tree named after him as *D. Fir* (q.v.).

Douglas, Gavin or Gawin (c. 1474-1522), Scottish poet and bishop, was a son of Archibald 'Bell the Cat,' fifth earl of Angus. Educated at St. Andrews for the priesthood, he became provost of St. Giles, Edinburgh, in 1501, and finally bishop of Dunkeld in 1516. But as he had disobeyed the statute which forbade any one accepting preferment through the pope's bull, he underwent a term of imprisonment before taking up office. Although his nephew married the widowed queen of James IV., D. failed to rise so high in the church as he had hoped. When the regent Albany was trying to negotiate for the queen a divorce from Angus, D. made futile efforts to interest Henry VIII. in his kinsman's favour. D. wrote two allegorical poems, *The Palace of Honour*, and *King Hart*, both of which illustrate the writer's indebtedness to Chaucer, but his chief literary work was his trans. of the *Æneid* (pub. after his death, 1553), the first version of a Lat. classic pub. in Britain. See J. Small, *The Poetical Works of Gavin Douglas, Bishop of Dunkeld, and Life*, 1874; P. Lange, *Chaucers Einfluss auf die Originaldichtungen des Schotten Gavin Douglas*, 1882; L. M. Watt, *Douglas's Æneid*, 1920.

Douglas, George (Scottish writer), see BROWN, GEORGE DOUGLAS.

Douglas, John Sholto, see QUEENSBERRY, MARQUESS OF.

Douglas, Stephen Arnold (1813-61), one of the greatest Amer. statesmen and orators of his time, born Brandon, Vermont, April 23. Son of a doctor, he studied law and settled in the state of Illinois, and soon became a leader in the Democratic party. In 1836 he entered the state legislature; in 1840 he became its secretary, and in 1843 he was elected Congressman. Four years later he was elected to the U.S. Senate, and remained there until his death. He was the hero of the slave-holding states in the political struggles prior to the Amer. Civil war. Stood for the Presidency when Lincoln was elected. Was a leader in the W. states. In the Senate, however, Douglas superbly defended Lincoln's inaugural address and went to the White House and pledged Lincoln his support. In the last great speech of his life, which he made at Columbus, Ohio, on his way to Washington, he declared that the union must be preserved at all costs. The N. now closed ranks to fight the S. Douglas died in Chicago, June 3.

Douglas, Thomas, see SELKIRK, EARL OF.

Douglas, Sir William Fettes (1822-91), Scottish painter, b. in Edinburgh. From 1877-82 he was curator of the National Gallery of Scotland, and in 1882 he became president of the Royal Scottish Academy. His pictures are characterised by their perfection of detail and colouring, among his best being: 'The Alchemist,' 'The Rosicrucians,' and 'A Fishing Village.'

Douglas Fir (*Pseudotsuga Douglasii* or *taxifolia*), tall ever-green tree resembling the pine, native to W. North America. It attains a height of 250 ft. The timber is strong and quick growing. It is exported in considerable quantities, being known in Britain as Oregon Pine or Brit. Columbian Pine.

Douglass, Frederick (1817-95), Amer. journalist and orator. He was b. at Tuckahoe in Maryland, and was at first brought up as a slave, for his father, who was a white man, had married a negro slave. In 1838 he managed to free himself by escaping from a shipyard in Baltimore, and he then assumed the name of D. instead of Bailey, his original one. After living at New York and then New Bedford, he was appointed a lecturer by the Anti-Slavery Society on account of his eloquence. He pub. *Frederick Douglass's Paper* on the abolition of slavery, and in addition he filled some important offices, among them marshal for the dist. of Columbia and minister to Haiti.

Douglass, Sir James Nicholas (1826-98), Brit. engineer, b. in London. After being apprenticed and holding one or two posts as an engineer, he became in 1862 chief engineer to Trinity House, his chief work being the designing of the new Eddystone Lighthouse of 1878.

Doukhobors, see DUKHOBORS.

Douala, see DUALA.

Doullens, Fr. tn. in the dept. of Somme. It stands on the Authie to the N. of Amiens, and has a fine sixteenth century church. Pop. 5700.

Doulton, Sir Henry (1820-97), Eng. pottery manuf., b. in London. He was at first employed under his father, and afterwards opened at Lambeth the pottery works bearing his name, which are the largest in the world. He is noted especially for reviving art in connection with the design and manuf. of pottery.

Doom, see DOOM.

Doumer, Paul (1857-1932), Fr. statesman, and colonial governor-general, b. at Aurillac. Unsuccessful at the presidential elections of 1906, he was elected president in 1931. He was one of the makers of the Fr. colonial empire. Arriving in Indo-China in 1897 as governor-general, it was he who finally gave the colony a definite administrative structure, really united the colony and set its people on the path of progress. He was in power there for five years and he owed his success to direct action and carefully planned centralisation. 'To govern everywhere and administer nowhere is the task of the Governor-General' was his dictum. Thus he voluntarily renounced his administrative functions and successfully demanded that a Resident be named for the Protectorate. He revitalised the Imperial Council of Indo-China, with Fr. administrators and presidents of chambers of commerce as representative members, and the Resident as the effective chairman of the native King's Council. Assassinated in France by a Russian named Gorgoulou in 1932.

Doumergue, Emile (1844-1937), Fr. theologian, b. at Nîmes. Studied theology in Geneva, Montauban, and in Germany. Then made a special study of Calvinism and pub. a series of vols. on Calvin, among which are *L'Art et le sentiment dans l'œuvre de Calvin*; *La Pieté réformée d'après Calvin*; *Calvin le fondateur des libertés modernes*.

Doumergue, Gaston (1863-1937), Fr. statesman, and president of the Fr. Republic 1924 to 1931; b. at Algues-Vives, and son of a farmer. Educated at the lycée, Nîmes. Practised as barrister and became magistrate first in Cochinchina, and then in Algiers. Deputy for Gard, 1893, secretary of the chamber of deputies, 1895-96; colonial minister, 1902, 1905; vice-president of the chamber, 1905-06; minister of commerce, industry, and labour, 1906-08; of education, 1908-1910; and Premier in 1913. On the outbreak of war, he was colonial minister in Viviani's Cabinet. He had the distinction of being the first Protestant President of the Republic (1924-31). Prime Minister, 1934. (See illustration, p. 744.)

Doune, Scottish vil. situated in the co. of Perthshire, on the Teith. It lies to the N.W. of Stirling and contains the well-preserved ruins of its castle, built in medieval times. The old bridge was erected by the tailor of Princess Margaret of England, afterwards queen of James IV. Pop. 820.

Dour, com. of Belgium in the prov. of Hainaut, 10 m. S.W. of Mons. There are coal-mines in the vicinity. Pop. 11,600.

Doura, ruined tn. on the banks of the Euphrates, founded 300 B.C., but

abandoned after the destruction of Palmyra in A.D. 273. The Brit. troops discovered here in 1920 paintings of the second and third centuries, and excavations were made by the Fr. Académie des Inscriptions, which revealed the plan of the fortress, the streets, the temple of the Palmyrian gods, frescoes, sculptures, and inscriptions.



Topical Press

GASTON DOUMERGUE

Doura, or **Durra**, flour from a kind of millet seed yielded by different varieties of *Andropogon sorghum*, which is a coarse kind of grass much cultivated in Asia, Africa, and S. Europe. Indian durra makes inferior bread, but is used as a substitute for rice. The leaves and stalks of this variety before the plant flowers are poisonous to cattle. The name durra is often wrongly used to represent the genus *Sorghum*, but, correctly speaking, it applies only to the flour.

Douro (anc. **Durius**), third largest riv. of the Iberian Peninsula (about 185 m. long), draining an area of some 37,500 sq. m. Rising in the Pico de Urbiön (7389 ft.), S. of the Sierra de la Denianda, the D. crosses the Castilian plateau in a W. direction, then from 3 m. E. of Parafella to Barca d'Alva runs S.W., being for 65 m. the boundary between Spain and Portugal, and finally reaches the Atlantic at São João da Foz, 3 m. below Oporto, having traversed Portugal with a W. course. The tributaries on the right bank are the Pisuerga, Valderaduey, and Esla (in Spain), and the Sabor, Túa, and Tamega (in Portugal), and from the left the Span. Adaja, Tormen Yeltes, and the Portuguese Agueda, Cóa, and Paiva. A sand-bar at the mouth, rapids and swift inundations render the lower courses useless for navigation. Toro and Zamora are on its r. b.

Douroucouli, popular name for S.

Amer. monkeys of the genus *Nyctipithecus* in the family Cebidae. The incisors in the lower jaw project forwards, and the eyes of the monkeys are large, both of which features give them a lemurine appearance. They are unlike many of their allies in having the long tail non-prehensile.

Douw, Gerard, see **DOU**.

Dove, riv. of England, rising in Axe Edge, Derbyshire, 4 m. from Buxton. It forms the S.W. border of that co. and is noted for its beauty. Trout abound in its waters, and for this reason it was well known to Izaak Walton. The riv. flows into the Trent near Burton.

Dove. In very early times the D. was used in pictures to represent the Holy Ghost, and is often seen in pictures which deal with the various periods of Christ's life, especially in those of the Annunciation and His baptism. It was used also as the form of the pyx, and was sometimes placed on fonts. When represented with three pairs of wings it typified the church.

Dove, see **PIGEON**.

Dovedale, picturesque dell on the borders of Staffordshire and Derbyshire, England, extending from Thorpe Cloud to Dove Holes. The scenery is a charming combination of wood, rocks, and water.

Dover, chief of the five Cinque Ports, bor. markt. tn., and holiday resort in the co. of Kent, England. It is situated in a breach between high chalk cliffs on the N.W. side of D. Strait. It is 21 m. distant from Cap Gris Nez on the opposite side of the Eng. Channel, and lies 66 m. to the E.S.E. of London. The dominant feature of the tn. is its castle, with an altitude of 375 ft. above sea-level, which includes in its grounds a Rom. lighthouse, the anc. cruciform church of St. Mary-in-Castro, a massive Norman keep now used as a bomb magazine, and barracks for 200 men. The prospect from the keep includes, on a clear day, the Fr. coast from Boulogne to Gravelines, and the cliffs from Folkestone to Ramsgate, together with the many elaborate fortifications which honeycomb the D. cliffs on either side. D. College has been built round the fine remains of the twelfth century St. Martin's priory. The Admiralty Pier (begun in 1847) and the Prince of Wales Pier (begun in 1893), the former of which has an overhead railway, enclose many acres of sheltered waters. In 1896 the construction of an artificial naval harbour, with an area of 610 ac., was commenced, and also that of three great enclosing breakwaters of concrete, the combined length of which are over 1½ m. There are two docks, the Granville and the Wellington, the latter of which was widened for large Channel steamers in 1888. D. has shipbuilding, rope- and sail-making industries, besides her fisheries and traffic in dairy produce with France. The D. routes to the Continent via Calais, Boulogne, and Ostend are popular. The steamer crossing to Calais takes little over one hr. There is a pilot station with seventy-five pilots and a life-boat station. The boundaries were extended in 1921. During the Second World War, D. was one of Great Britain's 'front-line' tns.,

being repeatedly shelled from the coast of France by the Gers. In addition to considerable aerial bombardment. The bor. council, having been granted authority to acquire 26 ac. of 'blitzed' sea front by compulsory purchase, propose to build blocks of eight storied flats and hotels to replace the derelict boarding-houses. Pop. 41,000.

Dover : (1) The oldest (1623) city in the Stafford co. of New Hampshire, U.S.A., on the Cochecho Riv., 68 m. N. by E. of Boston. It has cotton and woollen mills, besides print works. The Univ. of New Hampshire is at Durham 5 m. S.W. Pop. 14,900. (2) The cap. of Delaware, U.S.A., and co. tn. of Kent co. on Jones' Creek and the Philadelphia, Baltimore, and Washington railway, 48 m. S. of Wilmington. Besides being the centre of a fruit district, D. has factories for canning fruit, etc. Pop. 4800. (3) A tn. of Morris co. New Jersey, U.S.A., with iron mines and varied manufs. Pop. 10,400. (4) A city of Tuscarawas co., Ohio, with iron ore and coal and manufs. Pop. 9600.

Dover Patrol. On the outbreak of the First World War the D. P. formed part of the E. Coast Naval Command, under the command of Admiral Ballard. Its duties were to prevent Ger. ships forcing their way into the Eng. Channel, and to inspect neutrals for contraband (*q.v.*). Soon after the War commenced it was made a separate command under Admiral Hood (*q.v.*), (who was subsequently killed at the Battle of Jutland). Later on, 'drifters', i.e., vessels equipped with drift nets in order to catch submarines, and trawlers to sweep for mines were added to the Patrol. Eventually it consisted of twenty-four distinct classes of fighting vessels. Admiral Bacon was in command from 1915 to 1917, being succeeded by Adm. Evans (later Lord Mountevans) of Antarctic fame. The work of the D. P. was very varied. Besides safeguarding the transport of troops to France, the D. P. was engaged offensively against the Gers. on the Belgian coast, and against their bases at Zeebrugge and Ostend; and in all, twenty-eight bombardments were carried out. Mines and mine net barrages were laid along the Belgian coast, a procedure which stopped enemy mine-laying in the Channel. Over five million troops were transported to France without a single casualty. The record of the D. P. is told by Adm. Sir R. Bacon in his *The Dover Patrol, 1915-1917*.

Dover, Strait of (anc. *Frelum Gallium*, Fr. *Pas de Calais*, narrow channel separating France and England, and joining the Eng. Channel with the North Sea. It is about 22 m. in length, and at its narrowest part, from Dover Pier to Calais, its breadth does not exceed 21 m. It extends from Dungeness and Cap Gris Nez in a N.E. direction to S. Foreland and Calais. The greatest depth is not quite 180 ft. The geological formation of the channel bed points to the fact that at one time England joined the continent. The tides of the N. Sea and the Eng. Channel meet in the Strait.

Dovercourt, holiday resort of Essex, England, situated at the mouth of the Stour estuary, S. of Harwich. There are two lighthouses guarding the entrance into Harwich Harbour and also marking the position of a sandbank. Good bathing is to be obtained at D. Pop. 8000.

Dovey (or *Dyff*), a river of N. Wales, rising in Merionethshire and emptying in to Cardigan Bay at Aberdovey. Length, 30 m.

Dovrejsfeld, forms part of the mountainous tableland of Norway, being marked off by the valleys of the Sundal, Laagen, and Rauma, and by the fjords off Nordmøre. Precipitous, irregular spurs, attaining an elevation of 6000 ft., shut in the Rauma valley (well known to tourists as the Ramsdal), but Snehætton, a magnificent snow field, is the highest peak (7615 ft.).

Dove, Ring, see CUSHAT.

Dow, Lorenzo (1777-1834), Amer. Methodist preacher, b. at Coventry, Connecticut. Was sent as a missionary to the Catholics in Ireland, and both in England and America attracted great audiences: helped to found the Primitive Methodist Society in England. He was a strenuous opponent of the Rom. Catholics.

Dowager (O.F. *douage*, dower), meant originally a widow with a dower. First used in England of Catherine of Aragon, widow of Prince Arthur, it is now applied to all widows of high rank to distinguish them from their sons' wives.

Dowaziac, city and summer resort of Cass co., S.W. Michigan. Manufs. furnaces. Pop. 5000.

Dowden, Edward (1813-1913), Irish critic and literary historian, native of Cork, where he began his education, afterwards proceeding to Trinity College, Dublin. He held first the post of professor of oratory at that univ., and afterwards that of professor of literature. He was a great authority on Shakespeare and an able critic, his chief works being *The Life of Percy Bysshe Shelley* (1886), *New Studies in Literature* (1895), *The French Revolution and English Literature* (lectures, 1897), *Puritan and Anglican: Studies in Literature, 1800*; *Robert Browning* (1904), *Essays, Modern and Elizabethan* (1910). He also ed. or wrote introductions to the following: *Shakespeare's Scenes and Characters* (1876), *The Sonnets of Shakespeare* (1881), *The International Shakespeare* (1884), *Romeo and Juliet* (The Arden Shakespeare, 1899), *See Lily E. Marshall, The Letters and Poems of Edward Dowden, 1914*.

Dowie, John Alexander (1847-1907), b. in Edinburgh, was for a time a student at Edinburgh Univ. He afterwards went to S. Australia, where his parents were living, as the minister of a Congregational church. Later on he claimed the power of being able to heal people by means of prayer, and organised the 'Christian Catholic Church in Zion', he himself being the overseer, and at the beginning of 1900 he settled with his followers on the shores of Lake Michigan in Zion City. In 1903 and 1904 he visited England, where he did not meet with much encouragement, and

in 1906 his prestige over his followers was lost after the revolt of Zion City. D. was popularly known by the title of 'Doctor,' and he himself claimed to be Elijah.

Dowlais, industrial community of Wales, in the co. of Glamorgan adjoining Merthyr-Tydfil, of which it is a suburb. The Dowlais Iron and Steel Works employ about 20,000 workers.

Downland, John (1563-1626), Eng. lutenist, b. probably in London. According to Fuller's *Worthies* he was a native of Westminster. The greatest lutenist of his age, he held the position of court lutenist to Christian IV. of Denmark at a salary of 500 dalers per annum, a sum equalling the salaries of the high officers of state. According to Henry Peacham (*Minerva Britannia*, 1612), D. was neglected in England, Peacham comparing him to a 'nightingale sitting on a briar in the depth of winter.' D. was recognised in his own country only in his old age when he was appointed one of the King's (Charles I.) Musicians for the Lutes. His songs with lute accompaniment are the most accomplished of their kind and are said to have been pub. in all the chief European capitals. His *First Booke of Songs or Ayres of Foure Parties with Tableture for the Lute* was pub. in 1597. Its success was immediate and four more eds. were called for between 1600 and 1613. It was represented in score by the Musical Antiquarian Society in 1844 and all four books with three songs in 'The Musical Banquet' have been pub. in the *English School of Lutenist Song-writers* (ed. E. H. Fellowes). As a performer on the lute D. had no rival in Europe and his skill is celebrated in a sonnet by Richard Barnfield. His son Robert (1586-1641) succeeded him in his English royal office.

Dowlas, coarse kind of unbleached linen. Exceedingly strong; it was used by workmen for their aprons and sometimes for their shirts. It is not used so much, however, in the present day.

Dowlatabad, see DAULATABAD.

Down, maritime co. with a coastline of 67 m., in N. Ireland, having an area of 609,057 ac. Belfast Lough, Dundrum and Carlingford Bays are spacious inlets along the indented shores, but the largest is Strangford Lough, whose waters are studded with 260 islets. Slieve Donard reaches the highest altitude (2796 ft.) in the Mourne Mts. to the S. The Bann, the Lagan, and the Annacloy are the chief rivers, whilst the Newry Canal along the W. gives increased facilities for communication. Oats, potatoes, wheat, turnips, and flax are widely cultivated, whilst pigs and cattle are reared. Linen, hosiery, woollens, leather, cattle, butter, and corn are the prin. exports. The co. tn. is Downpatrick. Round towers, stone cairns, raths and abbeys are among the antiquities of interest. Two members represent Down in the Imperial House of Commons. Pop. 310,600.

Downham Market, mrkt. tn. and urban dist. of England, in the co. of Norfolk. It is situated on the Ouse, 11 m. S.W. of King's Lynn and has a large flour mill, malt houses and a brewery. Pop. 3400.

Downing College, Cambridge, founded in the year 1800 by money which had been left in 1717 by Sir George Downing for that purpose, and its charter was sealed in the same year, making it part of the Univ. of Cambridge. The college must consist of a master, two professors (one of laws of England, and one of medicine), and a certain number of fellows and scholars. There are scholarships which may be competed for by those who are not members of the univ. Some of these are foundation scholarships, and others are minor ones of less value, and those obtaining them may afterwards compete for foundation ones.

Downing, Sir George (c. 1623-1684), Eng. soldier and politician, son of Emmanuel D., of the Inner Temple and later of Massachusetts. Educated partly in England and partly at Harvard College. Went to England about 1645, and became a scout-master-general in Cromwell's Scottish Army, and a teller of the Exchequer. Was deputed by Cromwell, after the war, to make a settlement with Scotland. Represented Edinburgh in Parliament, and later England at The Hague, being one of the foremost advisers on foreign policy during the Protectorate, under both Oliver and Richard Cromwell, his greatest mission of that time being to try to bring about a union of all the European Protestant Powers. Always a zealot for the old Constitution, he was active, on the accession of Charles II., in endeavouring to arrest the regicides who had sought refuge on the Continent. He received large grants from the king for his services, but though an able man, he was crafty, avaricious, and treacherous. He is often mentioned in Pepys' Diary.

Downing Street, street of Westminster, London, leading into Whitehall. Its name is derived from Sir George Downing, a celebrated politician, who lived in the reign of Charles II., and was Secretary to the Treasury in 1667. The Foreign Office and also the Colonial Office (shortly to move to more commodious premises) are here, as well as the official residences of the Prime Minister and the chancellor of the exchequer; numbers 10 and 11 respectively. See E. Jameson, *Ten Downing Street: The Romance of a House*, 1945.

Downpatrick, cap. of co. Down, N. Ireland, 28 m. S.S.E. of Belfast (by the Belfast and County Down railway), is a tn. of extreme antiquity, situated close to the S.W. fringe of Strangford Lough. Though St. Patrick founded the see in 440, the present cathedral (Protestant) is not older than 1790. Ships of 100 tons come up as far as Quoile quay, about a mile from the tn. The dun or rath of Keltar, extending over an area of 10 ac., is one of the best in Ireland. Its race meetings attract visitors, and Rom. Catholics seek its holy wells. Brewing, tanning, soap and linen making are the chief industries; cattle, pigs, corn, and potatoes the chief exports. Pop. 3200.

Downs, North and South, two ranges of rounded chalk hills, situated in the S. and S.E. of England, the enclosed valley being called the Weald. They have their be-

ginning in Hampshire, by Salisbury Plain. The N. D. lie in Surrey and Kent, ending in the S. Foreland. The highest points reach over 800 ft. above sea-level. The S. D. cross Sussex, and terminate in Beachy Head. The highest points reach 800 ft. above sea-level. The sheep reared on the Downs are celebrated.

Downs, The, safe place of anchorage for ships, 8 m. long by 6 m. broad, between the Goodwin Sands and the Kentish Coast. The scene of sev. sea-battles between the Brit. and Dutch.

Downton, par., formerly a mkt. tn., of England in the co. of Wiltshire, situated on the Avon, 6 m. S.W. of Salisbury. D. is of ant. origin, having been important in A.-S. times. The 'Moot' and earthworks of that period still remain. Cerdic, the Saxon, gained a victory here in 519. It sent two members to Parliament until 1832. Pop. 1300.

Dowsing, see under DIVINING ROD.

Doxology (Gk. *doxologia*, praise-giving), an ascription of praise to God. The name is given to the short ascriptions given at the end of some of the N. T. epistles, and occurring sometimes in the middle of an argument (e.g. the ends of Rom. and 2 Pet., and in Rom. ii. 36). The title is, however, more particularly applied to (1) the ascription, 'Glory be to the Father and to the Son, etc.', repeated in the Anglican and Rom. churches, principally at the end of psalms and canticles. This is known as the Lesser D.; (2) the Trisagion or Tersanctus taken from Isaiah vi. 3; (3) the concluding part of the Lord's Prayer, 'For Thine is the Kingdom, etc.'; (4) the Greater D., known also as the *Gloria in Excelsis*, which occurs in the first part of the Rom. Mass and the end of the Eng. Communion Rite.

Doyle, Sir Arthur Conan (1859-1930), Eng. author, eldest son of Charles D. the artist; also nephew of Richard D. of *Punch*, and the grandson of the famous John D. ('H. B.'). He studied medicine, and took his degree at Edinburgh; afterwards practising at Southsea, until his success as a writer induced him to devote himself entirely to letters. During the S. African War, however, he went out as senior physician of the Langman Field Hospital. His first book, *A Study in Scarlet*, in which 'Sherlock Holmes' made his first appearance, was pub. in 1887. He pub. many stories of different kinds: historical novels such as *The White Company* (1891), *The Exploits of Brigadier Gerard* (1896), *Uncle Bernac* (1897), and the excellent picture of the Georgian rakehell set, *Rodney Stone* (1896). But fame came to him through the creation of 'Sherlock Holmes,' the wonderful inductive detective, whose adventures thrilled the entire world, which followed his adventures with breathless interest. Undoubtedly suggested by the 'Dupin' of Edgar Allan Poe, Holmes was a mere caricature of that excellent conception: he captivated, not by real astuteness, but by mannerisms and by a portrait that was an afterthought of the illustrator—whether suggested by D. or not; and it is more than suspected that his creator

held him in derision. D. wrote also for the stage; and his dramatic version of a story of his own, *A Story of Waterloo*, gave Sir Henry Irving one of his most popular successes. The latter part of D.'s career was largely expended on psychio research; and, after some books on the S. African and First World War, came *The Wanderings of a Spiritualist* (1921), and *The History of Spiritualism* (1926). The hero he found it so difficult to kill made his last appearance in *The Case Book of Sherlock Holmes* (1927). Sir Arthur was finally successful in his long effort to obtain the release of the unjustly condemned Oscar Slater. See J. Lamond, *Arthur Conan Doyle; a Memoir*, 1931; V. Starrett, *The Private Life of Sherlock Holmes*, 1934; J. D. Carr, *The Life of Sir Arthur Conan Doyle*, 1949.

Doyle, Richard (1824-83), caricaturist, was the second son of John D., also famous as a caricaturist. At the age of fifteen he pub. *The Eglinton Tournament*, or, *The Days of Chivalry Revived*. In 1843, when *Punch* was two years old, he became a regular contributor, and much of his best work appeared in it, notably 'Manners and Customs of ye Englyshe,' until in 1850 he retired, owing to the paper's attacks on papal aggression. He illustrated many books, among others Thackeray's *Rebecca and Rowena* and *The Newcomes*, Locker's *London Lyrics* and the *Bon Gaultier Ballads*. As an artist he was at his best in fantastic designs, for his fancy was unbounded, and in dainty elf-like designs such as those, by him, which still decorate the cover of *Punch*.

D'Oyly Carte, Richard (1844-1901) was for some time a concert and lecture agent, but at the age of thirty-one he became a theatrical manager, and it was in that capacity he became known to the world. In March 1875 he produced at the Royalty Theatre, London, *Trial by Jury*, the first of the series of comic operas written by Sir W. S. Gilbert and composed by Sir Arthur Sullivan. At the Opera Comique he brought out *The Sorcerer* and *H.M.S. Pinafore*, and followed these with *The Pirates of Penzance* and *Patience*. All these were successful, and the three men made, it is said, £60,000 a year. D. invested his share of the profits in the erection of the Savoy Theatre, where he put on the other Gilbert and Sullivan plays, nearly all of which had a long run. D. in 1891, opened the building now known as the Palace Theatre as the English Opera House, but here he met with his first and only check. The venture was a failure, and the building was disposed of to a syndicate for music-hall purposes.

Dracæna, genus of Liliacæ, comprehends forty species found in warm parts of the Old World. It was estab. by Linnaeus and named from one of the species yielding the resinous exudation known as dragon's blood. *D. terminalis* is regarded as a symbol of truth and of peace in the E. Archipelago; sugar and an intoxicating drink are obtained from the roots in the is. of the Pacific. *D. draco*, the dragon-tree, which yields the red

gum-resin, had a celebrated representative in Teneriffe. This tree, which was blown down in 1868, was 45 ft. in diameter, 70 ft. in height, and was supposed to be about 6000 years old.

Drachenburg, or **Drachenfels**, peak in the Rhineland, Germany, belonging to the Siebengebirge range. It is situated on the r. b. of the Rhine, 10 m. S.E. of Bonn, and close to Königswinter. Rising to a height of 1055 ft., it is noted as being the steepest, although not the highest mt. of the whole group. The Drachenhöhle, or the dragon's cave, is in the slopes, around which is woven the story of the dragon that was slain by Siegfried. The peak is ascended by a road and a rack and pinion mt. railway. A castle, ruined since the Thirty Years War, stands on the summit.

Drachenstein Mountains, chain of mts. in the S.W. of Cape Prov., S. Africa. They extend N. and S. to a distance of 25 m. eastward of Cape Town.

Drachm, or **Dram**, see **under WEIGHTS AND MEASURES**.

Drachma was, in anct. Greece, a silver coin, equal in value to one-hundredth part of a mina and a six-hundredth part of a talent. Until Solon's day a D. was worth a little over a shilling, but the Attic D. was equivalent to about 9½d. in Eng. currency. The obol was equal to one-sixth of a D. In Athens the principal coin in use was the tetradrachmon, worth four drachmæ, having the head of Pallas engraved on one side, and the owl on the other. As a weight measure, 100 drachmæ were again equal to 1 mina (almost a lb.). The Gk. D. in modern currency, is worth about 8½d. It is divided into 100 lepta.

Drac, Canal du, see **GAP CANAL**.

Dracina, **Dracolin**, see **DRAGON'S BLOOD**.

Draco (seventh century B.C.). Athenian statesman and lawgiver. He was the first codifier of the laws of Athens. Before his time the laws were unwritten and were administered by the Eupatridæ. Tradition has always connected his name with a severity which has become proverbial in the word 'draconian.' Demades, the orator, declared that D.'s laws were 'written in blood,' for nearly every law-breaker suffered the penalty of death. It is now generally agreed by scholars that the constitution assigned by Aristotle (*Athen. Polit.*) is not authentic. See also **ATHENS** and **GREEK—History**.

Draco, (lizard), see **FLYING DRAGON**.

Draco ('the dragon'), constellation in the northern hemisphere. A star in Draconis was used by Bradley in his discovery of the aberration of light. It is situated almost in the solstitial colure, and so the minor axis of the lesser aberrational ellipse lies in the meridian at its transit.

Draco, (Greece), see **PIRÆUS**.

Dracunculium, see **DRAGON**.

Dracut, tn. of Middlesex co., Massachusetts, U.S.A. Pop. 7300.

Dra-el-Mizan, tn. of Algeria in the arron. of Tizi-Ouzon, with marble quarries and cork manufs. Pop. 6740.

Draft, order written by the drawer to authorise the payment of a sum of money by some other person acting as an agent.

These Ds. are used in commerce between firms and in municipal affairs by corporations.

Dragomans (Fr. *dragoman*, It. *dragomanno*, Arabic *layuman*), the men in the E. who act as interpreters. They act as guides, and in addition to that they make all the arrangements for their travellers, some of them being employed at the ambassadors' courts.

Dragon (Gk. *δράκων*, the seeing one, from *δρακωμαι*, to see; Lat. *draco*, Fr. *dragon*), in the mythology of almost all nations, is typical of the power of evil which has to be overcome, hence the great work of the heroes of the nations was to kill the D. The conception of its shape seems to have varied slightly, but in its essential principles it was snake-like, probably having wings and being able to breathe out fire from its mouth. With this idea of the snake's representing the power of evil is connected that of the N.T., in which the serpent is typical of sin, as the D. held a similar place in the sacred writings of the Heb. In the Gk. mythology, the hydra, or monster with nine heads, was slain by Hercules, while others among the heroes also slew Ds. In the same way the heroes of the stories of northern mythology made their great feat the slaying of the D., among them being the god Thor, Siegfried, whose story is related in the *Nibelungenlied*, and Beowulf, the hero of the poem of that name. This idea is found in later Gk. Romances and in the medieval stories of King Arthur and Tristan. In the Gk. mythology the D. is represented with eyes ever on the watch, a symbol of the evil that waylays men to kill, as in guarding the 'Apples of the Hesperides' and the 'Golden Fleece', because these are prizes that fall only to those who are as vigilant towards him as he is to them. It is consecrated to Minerva to signify that true wisdom, as sensible as the ever-vigilant D., never sleeps.

Dragon, popular name of several species of lizards, and is particularly applied to members of the Amer. genus *Dracena* and the Malayan *Draco*, see **FLYING LIZARD**.

Dragon, in botany, is the name applied to plants in the araceous genus *Dracunculium*. The stem is usually mottled, and the flowers have a gaping mouth. Green Dragon is a herb found in S. America. The corn contains a sap used locally in medicine. The term 'dragon plants' is applied to the two species of *Dracunculus* which flourish round the Mediterranean. The name of dragon-wort is given to two distinct herbs, *Arenisia dracunculius*, a species of Compositæ, and *Polygonum bistorta*, a species of Polygonacæ. The plant known as the dragon-tree is *Dracena draco*, a liliaceous tree from which exudes the resin called dragon's blood. Dragon-Root occurs in hot countries and is believed to be fertilised by snails; the tuber is used in medicine. Dragon's Head, or *Dracocephalum*, a genus of the Labiæ which receives its name from the appearance of the corolla.

Dragonet, or *Callionymus*, a genus of small fishes living in the sea, the males

have the fin-rays produced into filaments. *C. draco* is known as the skulpin.

Dragon-fly, name of a number of insects now considered to belong to the order Odonata, though some writers still call the family Libellulidæ. They are sometimes called 'devil's darning needles' and 'horse-stingers,' but are at the same time harmless except to the insects which form their food; horses and ponies, however, view them with some misgiving and will move out of their path of flight. They are characterised by a very freely moving head; large compound eyes, made up of thousands of facets; an overhanging upper lip enabling them to catch their prey; small antennæ; two pairs of wings equal in size, the main nervures having a longitudinal direction crossed by a number of

W. J. Lucas, *British Dragon-flies, Odonata*, 1900.

Dragon Mountains, see **DRAKENBERG**.

Dragonnades, see **CAMISARDS**.

Dragon's Blood, a name applied in ancient pharmacology to the resin derived from a number of plants, chief of which are the *Calamus draco*, and *E. Indian palm*, *Dracæna draco* of the Canary Is., and the *Croton draco* of Mexico.

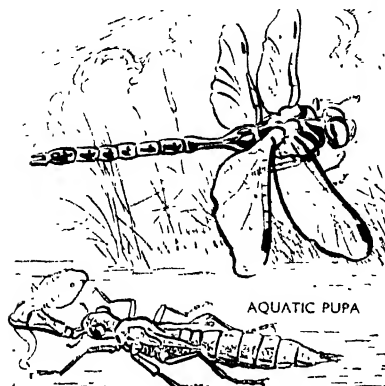
Dragon's Mouth and Snapdragon, popular names for flowers of the genus *Antirrhinum*, and order Scrophulariaceæ. The corolla is personate, and when pinched between the fingers the mouth opens and then closes with a snap.

Dragon (Fr. *dragon*), originally applied to a cavalry soldier, trained to fight on foot. He received his name from his weapon, a 'dragon' or short musket, so called from the dragon's head worked on the muzzle, which was first carried by the horsemen of Marshal Brissac in 1600. Accustomed to fight with the infantry, they were organised into companies, their officers bearing infantry titles. Ds. were naturally at a disadvantage, as regards armament and horsemanship, compared with the *bona fide* cavalry regiments. Since the campaigns of Frederick the Great, the term D. has been used of medium cavalry. In police and in all kinds of guerilla warfare, Ds. have been employed, because they combine efficiency with economy. When Louis XIV. proceeded against the Protestants, he was said to 'dragoon' or 'dragoonade' them. The Scots Greys (established in 1683) is the oldest D. regiment in the British army. See also **ROYAL DRAGOONS**; **SCOTS GREYS**; **GUARDS**; **DRAGOON**.

Draguignan, tn. of France, cap. of dept. of Var., 50 m. N.E. of Toulon. Pop. 11,800 (arron.), 112,500.

Drain (Sewers), see **SEWAGE**.

Draining, Drainage, process of rendering a mass of substance free from moisture. Drainage is often associated with the carrying away of sewage matter in artificial channels (see **SEWAGE**), and with reclaiming land by enclosing it with dykes and carrying off the water by special channels. In the practice of agriculture, however, the term is most often used to designate the removal of excess of water, which would otherwise become stagnant, from a clayey soil. Such D. was practised by the Romans, who kept their lands dry by open trenches or drains in which a porous channel was maintained by a layer of stones or twigs. The use of covered drains was revived in England by Joseph Elkington about 1763, who showed that land could be freed from stagnant water by tapping the obstructing clay by deep drains in suitable directions. In 1823, James Smith of Deanston introduced the parallel system which is the basis of all methods now in use. When the slope of the field, or of any section of it, is determined, and a suitable outlet for the water obtained, a main receiving drain is constructed along the lowest part of the ground, and a series of parallel drains made so as to fall towards the main drain. Smith suggested that each trench should



DRAGON-FLY

nervules; an elongated abdomen and slender legs. The flight is very fast and powerful, and on migration the D. can fly hundreds of m. In the early stages of their life they live close to the water—the eggs being deposited in or near the water, and there is no stage of quiescence between the larva and the nymph. During the larva stage, the mask, a modification of the lip, enables them to obtain their prey. The number of species is about 2000, distributed over the globe, but principally in tropical regions, however, being natives of Britain. It is a curious fact that none of the varieties has been given a popular name, as is the case with butterflies and moths. They are exceedingly voracious and very active, some species having a brilliant and beautiful colouring. Included in the number of 43 species in Britain are 16 damselflies, differing little in appearance from Ds. Their nymphs, however, breathe through the back while those of Ds. breathe through their tails. The damselfly, too, is not so strong as the D. and is content to fly around the home water. See W. F. Kirby, *A Synonymic Catalogue of Neuroptera Odonata*, 1890;

be 30 in. deep; at the present day they are usually cut to a depth of 3 to 4 ft., the width at the bottom being just sufficient to receive the line of porous cylinders which carry off the water. Formerly these were connected by collars, but if well laid there is no necessity for that method of joining. The distances between the parallel drains may be from 10 to 40 ft., according to the extent to which water is imprisoned.

The effect of D. land is greatly to increase its agric. value. In a marshy soil, aquatic plants and mosses thrive and prevent the proper development of grass or corn. The temp. tends to be low from the constant evaporation, and crops are, therefore, liable to fail in bad seasons. Tillage is difficult on account of the toughness of the soil. The excess of moisture prevents the passage of air through the soil, thus starving the roots. Sheep and cattle are much more liable to disease. When the land is drained these disadvantages disappear. By this means many districts in the low-lying parts of the E. of England have been converted into good arable and pasture land. The Land Drainage Act, 1930, was passed to promote schemes of land drainage, through the formation of catchment authorities under the Act. See R. W. Walker, *Principles of Underdrainage*, 1929; B. W. Adkin, *Land Drainage in Britain*, 1933; H. H. Nicholson, *The Principles of Field Drainage*, 1942.

Drake, see DUCK.

Drake, Sir Francis (c. 1545-96), navigator. One of the most popular figures in England's naval annals, and his praises have been sung from his own day until ours. There is much uncertainty on both the date of his birth and even on his parentage. Local tradition has it that he was born at Crowndale, near Tavistock, in a cottage the appearance of which is preserved in Lewis's *Scenery of the Tamar and Tavy* (1823). In Stow's *Annals* it is implied that he was born in 1545, but the statements on two authentic portraits suggest that the true date was some years earlier. It appears that his father's name was Robert, probably third son of the last John Drake of Otterton, and that his mother was Agnes Kelloway. His father seems to have been in a humble way of life, though, according to a note added to the grant of arms in 1581, D. had the right to bear the arms of his name and family. Certainly D.'s uncle, John D. of Exmouth, was an energetic and successful merchant who had estab. his rights to an estate in Ash and raised his family to opulence and influence—in which good fortune, however, Robert, his brother, had but little share. There is evidence that Robert D. was in some way connected with or dependent upon the rising house of Russell, whose heir, the earl of Bedford became godfather to Francis. All we know of John D.'s life is what may be read in his grandson, Sir Francis D.'s preface to *Drake Revived*, pub. in 1626. The story of D. becoming the favourite page of King Philip of Spain at the Eng. Court, is apocryphal and similarly, there is no

evidence that he was ever employed in a post of trust in the W. Indies. But there is no reason to doubt Camden's statement that in his youth D. was apprenticed to the sea. In 1565 he sailed with Capt. John Lovell to the Sp. Main, and his capacity for handling a vessel became so well known that two years later he was selected to command the *Judith* in that ill-fated expedition of Sir John Hawkins, which was defeated with great loss off San Juan de Luna. Between 1570 and 1573 he made three voyages to the W. Indies, during which he sacked Portobello and Vera Cruz, and accumulated a considerable fortune. It was in 1577 that he set



SIR FRANCIS DRAKE

out for the R. *Plato* on a buccaneering expedition, and he made his way through the straits of Magellan, sailed through the Indian Archipelago, rounded the Cape of Good Hope, and returned to England, having thus completed the circumnavigation of the globe, the first Englishman to have done so. To his vessel, the *Golden Hinde*, came Queen Elizabeth on April 4, 1581, and there knighted the intrepid sailor. Four years later he was given the command of a fleet, and committed many assaults on the Sp. fleet and the Sp. coast towns. He was urgent in his advice that every effort should be made to destroy the Sp. fleet in its own waters, but other counsels prevailed with the gov. So it came about that in 1588 the Sp. Armada sailed for England, and D., having the chance of his life, seized it, and defeated the Armada off Gravelines, pursuing it and destroying several vessels, as the fleet sailed northwards up the coast to Scotland. Still vigorous, D. now carried the war again into the enemy's country, and laid waste many towns, and destroyed many ships and vast stores, thus putting an end for many years to come to any fears of a further armada being sent. In 1594 he was sent with a fleet to the W. Indies, and it was whilst on this expedition that he died at Portobello. He was buried at sea, the proper cemetery for a brave and brilliant seaman. The reputation of D. has suffered some vicissitudes. He has been called a common

pirate; he was acclaimed as a great Christian hero by the pugnacious Protestants of the Victorian age. Kingsley's robust sentimentality and Froude's special pleading may have had the combined effect of turning people against the sea-adventurers of the Elizabethan age. It might seem that, when we forget the Tractarian Movement, which was, in some sort, the inspiration of Kingsley's and Froude's portraits, we shall see D., not as a Christian hero, but as the greatest sailor of his time, as the man who wrested the mastery of the sea from the Spaniards and the Portuguese, and as the initiator of the traditional Eng. naval strategy—that of seeking out the enemy in his own waters and fighting him there. See lives by Sir J. Barrow, 1843; A. Brereton, 1917; E. F. Benson, 1927; and A. E. W. Mason, 1941; also J. A. Williamson, *The Age of Drake*, 1938.

Drake, Nathan (1766–1836), Eng. essayist and doctor, b. at York. His best-known book is *Shakespeare and His Times* (1817).

Drakenberg Mountains, or **Dragon Mountains**, chain of mts., situated in S.E. Africa and lying parallel to the coast, between Cape Prov. and the Vaal R. The seaward slopes are steep and precipitous, while landwards the slopes are more gradual and form part of the tableland. That portion of the chain, between Natal and Basutoland, contains the highest points, Champagne Castle, Mont-aux-Sources, and Giant's Castle, each being considerably over 10,000 ft. in altitude, and all within 60 m. of each other. The prin. heights along the Transvaal, Natal, and Orange Free State frontiers are Malani, Inkwelo, Tintwa Majuba, and Drakenberg. The s. part of the chain forms the watershed between the rivs. flowing w. to the Atlantic and those flowing E. and S. to the Indian Ocean. The Orange R. and the Tugela rise in Mont-aux-Sources. Van Reinen's Pass and Laing's Nek are the chief passes crossing the range.

Dram, see **WEIGHTS AND MEASURES**.

Drama, tn. of E. Macedonia, Greece, celebrated for its tobacco. It has an active trade and fertile surroundings. The tn. was settled after the First World War by many refugees from Asia Minor, thereby providing labour for a large increase in tobacco culture. Here was the first Christian community on European soil. Pop. 31,600.

Drama (from the Gk. *δρᾶμα*, to do), a form of literary art for the direct representation of human actions and characters through individual impersonation, before an audience. In literary hist. the D. is classified as a branch of poetry, though many plays have been written in prose. Both the epic, or narrative, and the lyric, expressing individual emotion, are applied in D., where the facts of a story are developed in interchange of speech and action. This latter distinguishes the D. from simple dialogue; the illusion of reality is rendered plausible by the scene-painter and the stage-manager; altogether they express objectively every emotion by

word, gesture, or play of feature. The div. of a play in acts and scenes originates in the subject-matter of the D. itself, the invention of the drop-curtain and scene-shifting has created mechanical accessories. All these divs. mark the different stages of the development of the plot, show the complications leading to the climax, and finally solve the problem by the 'catastrophe'. The famous doctrine of the 'unities' is hardly more than a formulation of the inevitable stage-restrictions. Their origin may be traced to Aristotle's remarks on tragedy, but as conventions of the theatre they were definitely accepted by the classical Fr. dramatists, foremost among them being Racine and Corneille. The 'dramatic unities' are three: of place, of time, and of action. Place precludes any extensive change of scene; time is limited to the space of one day for the development of events; action requires that all the events shall converge on a simple plot. Shakespeare, Lessing, and the Fr. romanticists recognise as fundamental only the last of the three. Upon the Greek stage, the model for the classicists, there was no curtain and very little possibility for change of scene, consequently, unity of place was practically inevitable. Unity of time was necessary from the habitual presence of the chorus on the stage. Unity of action is simply an application of the principle on which is based every work of art. Sometimes a secondary plot is created by the author for the display of subsidiary characters of the play, mostly for the purpose of enhancing, by contrast, the effectiveness of the main action. The classic departments of the D. are tragedy and comedy; tragedy has a sad ending, comedy ends happily. But there are other differences. Tragedy deals seriously with serious themes, with the sufferings of humanity, and with fatality. Comedy exploits the follies and absurdities of the ridiculous and the base. Tragedy entertains through the excitement to pity and sympathy, comedy through the excitement to mirth. Satirical purposes may dictate the choice of the object of ridicule. Under-plots in tragedy introduce a comic element as a counterpoise to tragic emotions and heighten the impressiveness of the latter (see the grave-digging scene in *Hamlet*). Modern plays, however, contain much more diversity of plots than the ancient, and many of them are neither tragedy nor comedy, neither fish nor flesh. Of the different kinds of D., the so-called historical or romantic are sufficiently defined by their names; *melodrama*, of It. origin is a broadly treated mixture of tragedy and comedy, appealing to the lesser critical emotions; the Fr. *drame*, described variously as *tragédie bourgeoise*, or *comédie larmoyante*, represents life with little limitation as to form. Comedy has developed in not a few varieties, from the 'comedy of manners' of the eighteenth century to farce, burlesque, and vaudeville. Pantomime and ballet are ancient offshoots of the regular D., perhaps parts of its origin. Mimicry is fundamental to the acted D.,

an inevitable part of human nature, and doubtless common to all people. The dramatic dialogue of the Book of Job and the dramatic lyrics in the Canticles may be the primitive form of dramatic tendency, but the regular dramatic history begins in Greece.

Greek drama, both tragedy and comedy, was the consequence of the worship of Dionysus or Bacchus. At the Dionysian festivals in Attica, the followers of the wine-god were impersonated by choruses of men half-clad in goat-skins, whence probably derives the word tragedy (*τραγῳδία* = lit. goat-song), singing dithyrambic songs in honour of the god as they danced about the altar; thus, about 600 B.C. the Corinthian poet, Arion, led a cyclic chorus of fifty. Half a century later appeared Thespis of Attica, whose innovation was the introduction of an actor to fill the intervals of singing with stories, mimicry, and short dialogues with the leader of the chorus. Soon after the more serious performances were limited to the sadder parts of Dionysus' story and of other mythological tales. Pisistratus estab. at Athens the *Lenæa* festival, in which, as somewhat later, at the *Great Dionysia*, prize dramatic contests were included, and the development of tragedy was continued by Chærilus, Phrynicus, and other playwrights. The fifth century B.C. produced the greatest tragic writers of the Athenian stage: Æschylus, who enlarged the dramatic possibilities by making the number of actors two; Sophocles added a third. The original chorus of fifty was divided into four of twelve each (increased to fifteen by Sophocles), and plays were presented in groups of four called tetralogies, in one of which in each tetralogy the original satyric form was maintained. The other three, called trilogy, formed a consecutive series upon a single legend. A tragedy generally was made up of a series of episodes, separated by lyrics sung by the chorus, introduced by the prologue and terminated by the exode. The actors were trained by the author, and to 'teach' a D. was equivalent to producing it. The expenses of the production were borne by a chosen citizen, called the *choregus*, who thus participated in the contest. The Athenian tragedy was a sort of serious religious function. Aristotle in his *Poetics* defines its motive as 'to purify the passions of fear and pity through the exalted exercise of them.' Characterisations of the 'great tragic trio' of Athens have been innumerable from the times of Aristophanes. With Æschylus, the idea of *Nemesis* (divine vengeance) is an overwhelming mystery; with Sophocles it is a part of the moral law of life; with Euripides it becomes a source of human sadness. Under this trinity, tragedy in Attica became the means of expressing the deepest religious thoughts: their successors, Ion, Aæchæus, Agathon, and others, are insignificant, as none of their works have come down to us. Later, most of the lyrical element was lost through the dropping of the chorus from being an Athenian institu-

tion, tragedy spread to other Gk. tns., and its special relation to the worship of Dionysus disappeared. However, the earlier works were continually reproduced; we find them performed under the Ptolemies at Alexandria. Gk. comedy developed parallel with tragedy; it originated with the crude songs of the more rustic Dionysian festivals, which led naturally to a dramatic composition of a gay character. It is said to have been introduced into Attica early in the sixth century B.C. by Susarion, the Megarian but before it was encouraged at Athens it developed elsewhere, particularly among the Dorians in Sicily, where flourished Epicharmus of Kos (born c. 540 B.C.) and Sophron, the inventor of mimes, who wrote in Doric prose, dispensing with both chorus and plot. Athenian comedy is commonly divided in three periods of Old, Middle and New Comedy. Aristophanes was the great master of the first; Cratinus, Crates, and Eupolis were his contemporaries. It was constructed on similar lines to tragedy, but with a chorus of twenty-four and an additional element, the *parabasis*, in which the audience was directly addressed; it dealt frankly in personalities, was largely political and did not hesitate to caricature the leading men of the day. At the period of middle comedy the freedom of speech was somewhat limited, and the butt of the comedian's ridicule were the follies and foibles of whole classes rather than those of individuals. The chorus was dropped. The new comedy, at the beginning of the third century B.C., had brought the aforementioned tendency to a full development. Political questions were neglected, and writers like Menander and Philemon devoted themselves to the exhibition of ridiculous complications of the social life of a decadent society. Some of the types then created, the glib old man, the dissipated son, the impudent servant, serve still in our days. This latest Gk. comedy is chiefly known to us through the adaptations of the Rom. comedians Plautus and Terence.

Roman drama—The Romans, who had but few dramatic gifts, naturally preferred comedy to tragedy. Comic elements are to be found in the *saturnæ* of the early Lat. tns. It is generally assumed that the Romans borrowed their first idea of a play during a period of national dependency (364 B.C., Livy vii. 2) from the Etruscans, from whom came their word *histrio*, an actor. The rude farces known as *fabulæ Atellanæ* were effusions of sportive humour, and came from the Oscans. Mimes they took from Magna Græcia; and their literary D. was practically an imitation of the Gk. The D. was one of the earliest branches of literature cultivated by the Romans. Both comedies and tragedies were written by Livius Andronicus, Nævius, and Ennius; tragedies by Pacuvius and Attius, none of which have come down to us. Nævius is celebrated for having got into trouble by ridiculing prominent people in imitation of the old comedy of Athens. What is left to us of Rom. comedy belongs to the works of Plautus and Terence, of the class called

palliate; closely adhering to the Gk. models, as distinct from the so-called *togata*, which had Rom. subjects. *Plautus*, once a poor labourer, has a degree of rough vigour and broad jocularly, while *Terence*, a Carthaginian slave, is more refined and delicate in his wit and characterisation. The works of both are based on *Menander* and *Philemon*, but one change of form is to be particularly noted; the prologue ceased to be the first act of the play, and became what it has since remained, a detached explanation. Tragedy, more as literature than for stage production, was cultivated by writers of the Augustan age and later. Of all these attempts naught remains except the rhetorical *De*s. attributed to *Seneca*, though certainly not all to this philosopher. One of them, *Octavia*, is of the class called *proetacta*, treating historical Rom. subjects; the remainder are all from Gk. mythology. With the decadence of the Rom. empire, all 'legitimate' *D.* declined, and the stage was held by dancers and pantomimes, some of whom became great popular favourites. *Cicero* testifies to the excellence of *Roscus*, the most celebrated of Rom. actors.

Indian drama was long said to have been derived from the Gks., but is now generally thought to be of independent origin. Like the Gk., it arose from religious ceremonies, along with the dances and songs of popular festivals. However, the Hindu *D.* is not tragic, and makes far more of romantic love than does that of the Gks. *Kalidasa*, the greatest literary genius of India, commonly assigned to the first century B.C., is by recent criticism placed several centuries later. The best period of Sanskrit *D.* was from about the fourth to the ninth century A.D. A peculiar feature of Indian plays is the use of different dialects for different characters. Gods, heroes, and men of high standing speak Sanskrit; women and men of low position speak Prakrit in various forms. The best known Sanskrit play is *Kalidasa's Sakuntala*, a heroic love *D.* of poetical beauty. Another five-act play of *Kalidasa's* is *Micramoreasi* (The Hero and the Nymph). Among other Hindu dramatists deserve to be mentioned *Bhavabhuti*, a Brahman of S. India in the eighth century; two of his three plays concern the adventures of Rama, the hero of the epic of *Ramayana*, on which several of the later Indian *De*s. are founded. Other noted plays are: *Mricchakatika* (the Toy Cart), a *D.* of social life, in ten acts, credited to King Sudraka of the sixth century; and *Ratnavali* (the Pearl Necklace), a romantic play, supposed to have been written by King Sriharsha, of the seventh century. The Moslem invasion killed the *D.* in India, and, though Sanskrit plays have been written in modern times, they are rarely acted.

Chinese drama.—Of all the other Oriental races, the only one which has a sort of dramatic literature is the Chinese, and their *D.*, in spite of the antiquity of the other Chinese literature, is comparatively modern. There are reasons for attributing its origin to the Tartars,

though it has commonly been considered an evolution from the native songs and dances. In the eighth century A.D. a sort of academy of music, known as the 'Pear Garden,' was founded by an emperor of the T'ang dynasty. *D.* proper did not develop till about the thirteenth century; the most famous of Chinese plays is called *Pi Pa Chi* (Story of the Guitar) of a somewhat later period. There are many printed collections of plays, but they differ materially from their acted versions. The avowed aims of the Chinese *D.* are of the most elevated, the glorification of all the virtues. Generally the plays are rather arid and conventional; as acted, they include much interpolated matter, which may account for the low esteem in which actors are held. Chinese plays are broadly classified, not as tragedies or comedies, but as 'civil' or 'military.' The latter include combats and all sorts of violent deeds. The former are quieter and deal with the more ordinary aspects of social life, with a tendency to the comic. There is little attempt at realism or stage setting. Women's parts are taken by men. Whole series of plays are commonly performed without intermission, which has led to statements as to the extraordinary length of Chinese plays. The nearest approximation in Chinese *D.* to the conception of tragedy is the universally popular play, *The Orphan of the Chao Family*, by Chi Chan-Hsiang.

Japanese drama.—The origins of Jap. *D.* were both social and religious. First written references to Jap. *D.* occur in the *Ko-ji-ki*, a Record of Ancient Matters, A.D. 712, where an account of *Kagura*, God-Music, is given. *Kagura* may have been originally music and dance either between, or in the presence of, gods. It is still played before *Shinto* shrines, and chants, rhythmic accompaniments to the movements of labour, such as the song for driving in stones, seem to have been incorporated into the *Kagura*. Field dances, *Tamae*, and field music, *Dengaku*, are of anc. origin; while other dramatic forms of social origin are *Sabara*, songs probably sung when the people were about to carry tribute to their rulers, and *Azuma mae*, songs of the E. provs. The *Matsuri* (processions of cars) are still popular in Japan.

Dengaku included six forms of *D.*—*Shiba* (lawn), *Dai* (great), *Sho* (small), *Maiko* (dancing girls), *Maru* (village) and *Kachi* (walking, probably on horseback)—and, with other dance *D.* such as *Ennen*, became formalised with the growth of Buddhism and developed into the *Noh* plays ('*noh*' meaning accomplishment), which are extremely conventionalised. *Noh* of *Sarugaku* (monkey-music) was originally comic, but lost its comic nature under the influence of the priests. In *Noh* there are two or more actors, the play is in verse and is chanted, the players are often masked and all movement is formalised. By the end of the fifteenth century four types of *Noh* plays were in existence—*Shinto noh*, which deals with mythological subjects; *Shugen noh*, commemorating customs; *Furei* and *Serei noh*, in which ghosts and spirits

occur, and *Genzai mono noh* dealing with things of life to illustrate a moral truth. As the literary preservation of *Noh* plays was under the care of Buddhist priests all comic element in them disappeared. The comic plays were extempore, and became incorporated in *Kyogen*. *Kyogen* means easy speech, and is realistic, non-literary social comedy. It is in prose, and is performed as interludes in the long programmes of *Noh* plays.

Medieval drama.—During the Middle Ages the church, practical as ever, undertook to replace the pagan shows by a Christianised equivalent, which seems to have arisen naturally out of the responsive chants and narrations of biblical events with which the congregations were both instructed and entertained. Later these entertainments took the form of regular liturgical D., which developed into the *miracle-plays, mysteries, and passion-plays*, which at Oberammergau and elsewhere have come down to our own days. With a similar purpose arose also the *moralities*, which mostly were performed by wandering churchmen. Out of these beginnings, varied occasionally by secular tendencies, modern D. may be said to have developed till the Renaissance came with a new impulse.

Italian drama.—In Italy, where the revival of the classical D. was earliest, the religious D. came to a full development before it was superseded by the modern dramatic form. The *Rappresentazione Sacra*, mostly in connection with the festivities in honour of Saint John the Baptist, were responsible for two works of great merit, *Abramo e Isacco* (1449) by Feo Belcarì, and *San Giovanni e San Paulo* by Lorenzo de' Medici. At the beginning of the sixteenth century Plautine comedy was revived in the writings of Cardinal Bibbiena, Ariosto, and Machiavelli, and some erratic attempts, like that of Poliziano, but the modern It. D. was born when Aristino produced a rather dull and conventional tragedy in blank verse, *Sofonisba*. Torquato Tasso's *Amita* (1573) set the fashion of pastoral plays. At the end of the same century Giambattista della Porta wrote his familiar and sometimes farcical comedies of a pleasant originality. The romantic D., originated in Spain, found favour in Italy, and the reaction against the domination of the classic school became effective. Borghini, Michelangelo Buonarroti (a nephew of the great artist), with his comedies *Fancia* (1612) and *Piera* (1618), and others, supported the movement. At the same period Rinuccini and his followers, by uniting music to the romantic D., created what was called the *melodrama*. Consequently tragedy and comedy were rapidly superseded by the *musica opera*, which, a century later, was brought to a literary level by Zeno, and perfected to the utmost by Metastasio, who with his *Didone Abbandonata* (first produced in Rome 1723) completely fascinated the It. public. His long series of works culminated in the triumph of his *Attilio Regolo* (1750). Maffei produced his

Merope (1713) with the definite purpose of restoring classic tragedy. But Fr. dramatic art soon began to influence the It. stage, especially through the efforts of the actor-playwright Riccoboni. The eighteenth century produced Italy's three greatest dramatists: Carlo Goldoni, Carlo Gozzi, and Vittorio Alfieri. Goldoni (1707-93), left his native Venice in 1761 for Paris; he is called the 'Italian Molière,' and may be called the master of It. regular literary comedy. Gozzi (1720-1806) his rival, wrote dramas based on fairy tales; both transformed the popular *Commedia dell' arte* (Comedy of Masks) into a literary shape which for some time enjoyed immense success. Alfieri (1749-1803) was of quite another metal. He was bold and passionate, a follower of the classic school and observer of the unities, and helped to revive the national spirit by such tragedies as *Filippo II.*, *Saul*, and *La Congiura de' Fieschi*. His successors, Monti, Nicolini, Manzoni, Silvio Pellico, and Cossa relaxed their adherence to classic forms. In the nineteenth century Italy was influenced by Shakespearean methods, in consequence of which her dramatists affected to give prominence to the historical D. Some exceptionally good works were successfully performed by the great It. actors, Modena, Salvini, Rossi, and Madame Ristori. In recent years the poet Gabriele d'Annunzio gained some reputation as a playwright, principally by such of his works as he wrote specially for the great actress, Eleonora Duse. Luigi Pirandello (1867-1936) was one of the greatest twentieth-century dramatists. His drama is metaphysical, and is influenced by the theory of relativity. There is nothing absolute about his plays and the characters in them are always concerned with their real, though hidden, personalities. Although the problems of his plays may be considered as abstractions, the characters are so possessed with these abstractions that the problems become human, and the characters lose nothing of their reality. The language of the plays is exact and unembellished, and his whole dramatic treatment is objective, but his dramas hold the spectator throughout, and possess something of the quality of poetry. *Six Characters in Search of an Author* (1921) and *Henry IV* (1922) are two of his best plays, most of which have been translated into Eng. and many other languages. See also *COMMEDIA DELL' ARTE*. Giuseppe Giacosa (1847-1906) and Roberto Bracco (1862-1943) showed in their work much of the influence of Ibsen.

Spanish drama.—Spain may well be considered as the bp. of the romantic D. Santillana, Lope de Rueda, called the patriarch of the Sp. stage, and Naharro were the beginners; Cervantes (1547-1616), Lope de Vega (1582-1635) and Calderon de la Barca (1600-81) became the perfectioners, the masters of Sp. dramatic literature. It is not generally known that Cervantes, of Don Quixote fame, is also the author of *La Numancia*, a serious tragedy of literary worth and dignity. Of his lesser contemporaries

Cueva, Virtues, and Argensula may be mentioned. Lope de Vega, the most prolific of dramatists of all times and nations, set all literary laws at defiance. He wrote with the most prodigious facility and with dramatic vigour. The number of his plays is said to exceed 1800, and won immense popularity, to which he often sacrificed some of his better qualities. Contemporaries of him were Juan Ruiz de Alarcón (c. 1580-1639), and Tirso de Molina (1571-1648) (Fray Gabriel Téllez), in whose *Burlador de Sevilla, ó el convidado di pietra*, was first introduced the figure of Don Juan. Calderon was greater than Lope de Vega. He was the greatest of Sp. dramatists and one of the great dramatists of the world. He is lyrical and animated by the highest sentiments. His ideals were devotion to the king, to the church, and to personal 'honour.' Some of his best works are the religious plays called *autos sacramentales*, in which the mystery of the Eucharist was dramatically set forth. With his death in 1681 the brilliant period of the Sp. theatre was practically closed. His contemporary, Moreto, wrote numerous fine comedies, mostly of the 'cloak and sword' sort, for which the Sp. stage is proverbial. José Echegaray y Eizaguirre (1832-1916) wrote more than thirty plays, many of which have as their theme a conflict between two forces. His best play is *El Gran Galeoto* (1881). He attempted to deviate in his plays from the so-called 'punto de honor,' on which Sp. drama had centred hitherto. In 1904 Echegaray divided the Nobel Prize for literature with Frédéric Mistral, but the younger Sp. dramatists, the 'generation of '98,' revolted against the past theatre of Spain and expressed their grievances in a manifesto against Echegaray. Benito Pérez-Galdós (q.v.) (1843-1920), a contemporary of Echegaray, was exempt from the criticism of the 'generation of '98.' His plays usually express some attitude of revolt, and are written regardless of stage technique, but the characterisation is good. One of the most famous of the 'generation of '98' is Jacinto Bonavente (b. 1866), whose work is prolific and varied. His plays form the link between the old and new D. of Spain and contain the varied thought of all the most important European dramatists of the nineteenth century. Among twentieth-century dramatists Gregorio Martínez Sierra (b. 1881) and the brothers Serafín (1871-1938), and Joaquín Álvarez Quintero (1873-1914) are outstanding.

French Drama.—France, accepting the 'unities' as the first essentials in the D., revived the classical D., which appeals to the logical temper of the national genius. In the *mystères, moralités, soties, farces*, romantic or anti-classic tendencies were manifest, but no great advance in proper dramatic achievement was made. The first regular five-act tragedy was written by Jodelle for the court of Henri II. He wrote some more plays, not without merit, but nothing remarkable was done till Pierre Corneille appeared under Louis XIII., when the star of Richelieu was shining brightly. He had to humour the

Court by humouring the Academy, and to please the Academy he had to observe the rules of Aristotle. He had already produced several plays of classical elegance and dignity, when, attracted by its romantic tendencies, he wrote his masterpiece, *The Cid*. All Paris rang with the praises of this work, but the Academy held aloof. Corneille had to return to the classical limitations, and was rewarded with a seat in the Academy. It was more than came to his contemporary, the great Molière, who insisted on remaining an actor, a resolve which the dignified academicians could by no means tolerate. Molière's name is doubtless in all the essentials of pure comedy the foremost name in the history of the stage. Like Shakespeare he borrowed much from the *Ita.*, the Spaniards, and the *Lats.*, but he made his theatre truly Fr. in wit, expression, and characterisation. By the union of Molière's company with that of the actors of the Hotel de Bourgogne, Louis XIV. estab. in 1680 Comédie-Française, (q.v.) an institution which is at the heart of the Fr. theatre, and is the most famous national theatre in the world. Racine was the great tragedian of the times of Louis XIV. He was not tempted, like Corneille, to overstep the academic proprieties. He was perhaps the most tender and the most elegant of Fr. writers, and it may be truly said that his *Athalie*, his masterpiece, has never been surpassed in noble elegance and severe grandeur. The brilliant and erratic Voltaire astonished Europe with the audacity and power of his romantic tragedies. Could he have been able to temper the intolerant iconoclasm of his fight against superstition he would have ranked as a dramatist with Corneille and Racine. In the nineteenth century, the D. of France was much more prolific than that of any other nation. Alfred de Vigny, Scribe, and Legouvé, Alexander Dumas pere and Victor Hugo, the leaders of the 'romantic movement,' Alfred de Musset, Emile Augier, Dumas fils, Octave Feuillet, Victorien Sardou, Edmond Rostand (the reviver of poetical plays), Jean Richepin, François Coppée all produced meritorious dramatic works. Writers who composed their plays on the 'marital triangle,' giving great attention to construction, are P. Hervieu (q.v.) (1857-1915), praised for his literary style, Maurice Donnay (1860-1945), and Henry Bataille (1872-1922). Other twentieth-century dramatists who specialise in sex drama, often with applied psychology, are Henryavedan (1859-1940), Jules Lemaitre (1853-1914), and Georges de Porto-Riche (1849-1930), while the plays of Alfred Capus (q.v.) (1858-1922) are sceptical in the extreme. Henry Bernstein (q.v.) (b. 1876) is a popular dramatist whose plays are almost melodrama. Eugène Brieux (q.v.) (1858-1932), with other of his contemporaries, François de Curel (1854-1928) and Henri Becque (1857-99), had his plays first produced at the Théâtre Libre, which was founded by Antoine in 1890. Brieux is known in Europe for the controversial subjects of his plays, but his dramatic ability is great and

his language is incisive. Sacha Guitry (b. 1885) is another twentieth-century dramatist, but his fame is more in connection with his acting and elocution. Since the First World War Fr. D. has developed European importance in the works of H. K. Lenormand, Jean-Jacques Bernard, Jean Sarment, Jules Romains, Paul Géraudy, Paul Claudel, Jean Giraudoux, Jean Cocteau and Jean Paul Sartre, and exportism has taken the place of tradition.

German, Austrian, and Czechoslovak drama.—Ger. drama dates practically from Lessing, Goethe and Schiller. Its origin is similar to that of all cultured nations, and up to the middle of the eighteenth century the Ger. stage was little more than a feeble reflex of Fr. influence. Lessing, both by his works and critiques, was the reformer, not to say the inaugurator, of Ger. dramatic art. His tragic plays, *Miss Sarah Sampson* (1755) and *Emilia Galotti* (1772), and his comedy *Minna von Barnhelm* (1763), opened a new era for the Ger. D., while in his *Hamburgische Dramaturgie* (1767–1769) he attacked Fr. classicism and praised Shakespeare. Goethe, one of the world's greatest geniuses, does not rank high as a dramatist. His *Faust* (1759) is doubtless one of the greatest modern compositions; but his chief purpose is self-cultivation, and in the prologue, his last and most famous production, he explains why, although writing in dramatic form, he cannot accommodate himself to the exigencies of a popular theatre. Schiller is the dramatic poet proper of Germany. Goethe's genius was fuller and more complete, but Schiller compensated by the intensity of his powers. Of his contemporaries there deserve to be remembered Heinrich von Kleist, Körner, Effland (actor, manager and author), of his successors Grillparzer, Grabbe, Otto Ludwig, Hebbel, Halm, Mosenthal, Gottschall, Auzengruber. Gerhart Hauptmann (1862–1913) is an important dramatist of the late nineteenth century. His plays are naturalistic and poetic and, with those of Sudermann, were performed by the Free Stage Society, founded in Berlin in 1889. Sudermann's greatest play is *Magda*. A contemporary of his, Frank Wedekind (1864–1918), wrote plays which refuse to be classified. *The Awakening of Spring* is one of his best known plays: his dialogue is brilliant and his influence on post-war dramatists great. If Wedekind may be called a writer of expressionistic drama, three important twentieth-century dramatists may be classed with him, Georg Kaiser, (1878–1945), Ernst Toller (1893–1939), and Fritz von Unruh (b. 1885). Max Reinhardt (1873–1943) is important in the hist. of the theatre, and his designs for productions are world famous. Arthur Schnitzler (1872–1931) is an important Austrian dramatist, his best play being *The Green Cockatoo*: Hugo von Hofmannsthal (1874–1929) is a tragic poet of profound influence; and Max Mell (b. 1882) dealing in drama of the homeland. Czechoslovakia has two expressionistic dramatists, Karel Capek (1890–1939) and his

brother Josef, whose best-known play is *R.U.R.*

Dutch and Scandinavian drama.—The Dutch D. is hardly more than an imitation of Fr. romantic plays. Nothing remarkable has been produced in Holland save for the work of Hermann Heijermans (1861–1924) and Jan Fabricius (b. 1871); or in Flemish Belgium. Fr. Belgium is the motherland of the poet Maurice Maeterlinck (b. 1862), whose plays are of a rather extreme type of some of the features of the symbolist movement. The Scandinavian countries have in recent times developed a D. of importance. The Norwegians, Bjørnsterne Bjørnson (1832–1910), and, first and foremost, Henrik Ibsen (1828–1906), have become very distinctive figures in the D. of psychological and social problems. Ibsen's influence on European drama is immeasurable. *Peer Gynt* (1868), *The Pillars of Society* (1877), *A Doll's House* (1879), *The Wild Duck* (1884), and *Hedda Gabler* (1890) are some of his best-known plays. Contemporaries and followers of him are Gunnar Heiberg, Veltio Visle, Gabriel Finne, Anders Sullöf, and Knut Hamsun. Johan August Strindberg, the Swede (1844–1912), a powerful but somewhat discursive dramatist, is an antidote to Ibsen's feminism. In Denmark, Adam Gottlob Oehlenschläger (1779–1850) is known for his dramas of the national tradition of the nordic hero-world. A wide influence in drama and literature also belonged to Georg Brandes (1842–1927) both dramatist and critic. Notable early twentieth-century Dan. dramatists are Johannes Anker-Larsen, Valdemar Rørdam, Otto Benson, Fru Emma Dnd, Gustav Bismann, Sven Lange, Gustav Wied, Hans Wiens-Jønsen, and Hjalmar Bergström.

Russian Drama is of very recent development. It is said that in earlier days Russian religious plays were performed. The first Russian theatre was estab. in 1756 in St. Petersburg, and its manager, Sumarokoff, and Kinaznin, and other forgotten authors, wrote plays for it in the Fr. style. Catharine II. herself elaborated satirical comedies, and at her time Ozlerov (1769–1816) was a writer of tragedies of repute. In the nineteenth century we have Griboedov (1795–1829) the author of *Goree Nama* (The Misfortune of being too clever); Nicolai Gogol (1809–1852), whose comedy *Revisor* (The Inspector) has become known all over the world; Alexander Pushkin (1799–1837), whose *Boris Godunov* shows Shakespearean influence; Alexander Ostrovsky (1824–86), whose plays are realistic and deal with the emotions of the people; Alexis Tolstoy (1817–75) whose dramas are founded on stories of the Russian Kings; and Count Leo Tolstoy (q.v.), whose plays follow no traditions, but contain great character studies. Early twentieth-century dramatists are Maxim Gorky (q.v.), whose greatest play is *The Lowest Depths*, and Leonid Andreyev (q.v.), whose plays are written in excellent prose. Both these authors belong to the period of the first Revolution. Anton

Checkhov (*q.v.*), one of the greatest twentieth-century dramatists, wrote plays for the Moscow Art Theatre, which theatre did not produce a specifically Soviet play until 1926. These plays are naturalistic artistically, needing simple yet sensitive acting. A later twentieth-century writer is Evreinov, much of whose work is based on his own theory of 'monodrama.' Since the Revolution, 1917, a new theatre has been built up in Soviet Russia, which has reflected the various phases of the republic. Lack of money made simplification of production necessary, and out of this grew geometrical construction in scenery. The main energies of the theatre in Soviet Russia have been devoted to organization and proselytising, and to preserving and developing the best in the Czarist regime. All the theatres are, of course, State-owned, being run by a dept. of the commissariat of education and in recent years they have sprung up all over the Union tapping an immense and hitherto uncultured audience. Each autonomous Republic and each racial minority has its specific theatre and, besides this expansion of the professional theatre, the amateur theatre is also an active and state-aided force. In the provinces there are Little Theatres and Strolling Players. Other theatres are the experimental state theatres and state circus, Jewish theatres, and the Moscow Art Studios. The theatre in Moscow to-day falls broadly in two parts: there is the section represented by the Moscow Art Theatre, the Maly Theatre, and the Kamerny Theatre, which has successfully merged the old traditions with the new. The other section is led by men like Meierhold, the firebrand of the Soviet Theatre, and Nikolai Okhlopkov, of the Realistic Theatre. Meierhold works on an elaborate theory of biomechanics; his actors, in fact, use stylised movements and steps and ladders; Okhlopkov has abolished the div. between the auditorium and the stage, becoming more Elizabethan than the Elizabethans. See André Van Gysegom, *Theatre in Soviet Russia*, 1943.

English drama, as in other countries, had its origin in the religious plays, written and performed by churchmen, who understood how to spice their miracle plays and mysteries with grotesque amusement, and it was not until the middle of the sixteenth century, as elsewhere, under the influence of the Renaissance, that the Eng. D. freed itself from these anct. fetters. The earliest known Eng. comedy is (1531 or thereabouts) *Ralph Roister Doister*, by Nicholas Udall, a learned master of Eton. A few years later Sackville and Norton produced their dull tragedy in blank verse, *Gorboduc*, or *Ferrex et Porrex*. Thereafter dramatic production was rapid, but mostly worthless; authors were Bishop Still, Kyd, Lodge, Lyly, Peele, Green, and Nash. The first dramatist of real merit was Christopher Marlowe (*q.v.*), the great predecessor of Shakespeare, whose best tragedies are *Doctor Faustus* (1604) and *Edward II.* (1594). But the great

luminary of Eng. D.—it may well be said of all the world's D.—is Shakespeare (*q.v.*). Among dramatists, the worthiest of his contemporaries are Ben Jonson, and Beaumont and Fletcher. Jonson wrote comedies and tragedies, stood more under the influence of the classics, but withal became famous with his light and graceful masques, which were the court's favourite entertainment. Beaumont and Fletcher worked in collaboration, and stand next to Shakespeare in romantic D. Dekker, Massinger, Ford, Webster, Chapman, and Shirley were authors of older Eng. dramas, when this kind of literature was abruptly and sharply terminated by the Puritan Revolution. With the Restoration, Fr. influence became apparent. *Display* mastered the play, and lavish staging over-ranked the value of the work. Leo and the unfortunate Otway wrote tragedies. Shadwell and the licentious Wycherley produced comedies; Vanbrugh, Congreve, and Farquhar brilliantly depicted society under a veil of immorality and indecency even more marked than that of some of Shakespeare's immediate predecessors. Then came Gay, Mrs. Centlivre, and the actor-playwright Colley Cibber, who was not lacking in dramatic spirit and invention. Famous, in another way, became Addison's tragedy *Cato* (1713), a solemn literary work, written in blank verse. Lillo, Moore, Garrick the actor, Goldsmith, the Colmans, and Cumberland nearly all wrote in prose. They produced agreeable comedies; but, except Goldsmith's *She Stoops to Conquer* (1773), hardly any of their works had a lasting success. Sheridan, who gave the impulse to what the Fr. call 'Comédie de Salon,' and whose *School for Scandal* (1777) is perhaps among its best Eng. examples, has long acquired a lasting place in the list of the Eng. D. Sheridan's immediate successors, Holcroft, 'Monk' Lewis, Maturin, Mrs. Inchbald, and others are insignificant. Later Joanna Baillie, Coleridge, Byron, Shelley, and Henry Taylor wrote fine book-dramas little suited for theatrical production. Then came in more recent times the dramatic poetry of Tennyson, Browning, and Swinburne. Plays of scenic power were written by Sheridan Knowles and Bulwer-Lytton, and during the Victorian era many mediocreities flooded the Eng. stage with their wares. A sort of speciality was created by W. S. Gilbert in 'the libretti' he wrote for Arthur Sullivan's operas. Late nineteenth-century dramatists were H. A. Jones (1851–1929), Sir Arthur Wing Pinero (1855–1934), and Oscar Wilde (1854–1900), who wrote comedies of wit. Bernard Shaw (b. 1856), with his plays that followed his dramatic criticism, brought new life to the Eng. theatre. His plays are controversial and witty, and have received world-wide recognition. *Arms and the Man*, one of his earliest plays, was produced by the Independent Theatre that was founded by Gresham in 1891. Other twentieth-century dramatists are John Galsworthy (1867–1933), whose plays are statements of social problems; Sir James Barrie (1860–1937), who

introduces an element of phantasy, the Poet Laureate, John Masefield (b. 1875), Somerset Maugham (b. 1874), Frederick Lonsdale (b. 1881), Clemence Dane, and Harley Granville Barker (1877-1946), whose most important work is in stage production, and James Bridle (b. 1888). Repertory theatres that have been formed in the provs. have produced such dramatists as Stanley Houghton (1881-1913), Allan Monkhouse (1858-1936), while verse drama has been written by Stephen Phillips (1867-1915), Thomas Hardy (1840-1928), Robert Bridges (1844-1930), Laurence Binyon (1869-1943), Laurence Housman (b. 1863), and Gordon Bottomley (b. 1874). Of the few important post-war Eng. dramatists Noel Coward (b. 1899), who writes satirical social comedies; T. S. Eliot notable for his striking renewal of poetic dramas; and J. B. Priestley (b. 1894), the novelist, whose later plays have portrayed the ordinary mortal involved with matters of time, the supernatural and the next world.

In 1899 the Irish Literary Theatre was estab. by Edward Martyn, George Moore, and W. B. Yeats, later to be joined by Lady Gregory and 'A. E.' (i.e. George William Russell, 1867-1935). In 1904 this theatre became the Irish National Theatre, when it was financed by Miss Horniman as the Abbey Theatre. W. C. Fay (1872-1947), an actor who was also a founder of the modern Irish dramatic movement, was one of the creators of the style of acting which made that theatre famous. Two types of plays have been produced—literary plays and folk plays. Irish dramatists who have written for this theatre are J. M. Synge, the greatest (1871-1909), W. B. Yeats (1865-1939), Lady Gregory (1859-1932), Sean O'Casey, and Lennox Robinson (b. 1886). Other Irish dramatists are Lord Dunsany (b. 1878), and St. John Ervine (b. 1883).

American drama is a recent development. Up to about thirty-five years ago Fr. and Eng. influence prevailed. With the advent of such popular melodrama as the *Old Homestead* of Denman Thompson, and such essentially indigenous farces of low life as those semi-improvised works of Harrigan and Hart, native originality first began to reveal itself. Probably James A. Herne, actor and stage manager, gave the greatest impetus to Amer. D. with his realistic play of New England rural life, *Shore Acres* (1892), and his late pieces *Griffith Davenport* (1898) and *Sag Harbour* (1900). In their directness, sincere representation of human nature and absence of all psychological finesses, lay their popularity—a popularity echoed by the modern *Mrs Wiggs of the Cabbage Patch*. Perhaps the most successful of modern Amer. dramatists was Clyde Fitch, whose social Ds. put him in the very front rank. Other successful Amer. Ds. are *The Easiest Way* (1909) by Eugene Walter; *The Great Divide* (1907) by William Vaughan Moody; *Jeanne*

d'Arc (1906), a poetical play by Percy MacKaye, and *Salvation Nell*, a striking slum theme by Edward Sheldon. The plays of these authors and also of Augustus Thomas, whose dialogue is excellent, Charles Rann Kennedy, and J. M. Paterson, are serious in intent and are written on European models, but perhaps it is not so much from these plays as from those aiming at a box-office success that a truly Amer. D. will develop. Plays of this latter type, such as those by George Ade and George Cohan, depend for their success on being up to date with current Amer. opinion. America's greatest dramatist, however, whose work is most alive with new possibilities, is Eugene O'Neill (b. 1888), a realist writer who also uses expressionist technique, as in *The Hairy Ape*. Another expressionist playwright is Elmer Rice (b. 1892), although in his best play, *Street Scene*, he abandons expressionism. Amer. D. to-day is becoming ever more important, for though the so-called 'new drama' came much later to America than to the Old World, the Amer. theatre has, for various reasons, flourished remarkably, and imported plays are but little regarded. Eugene O'Neill leads, enjoying, as he did, an international fame, but, inside America, Sidney Howard, Maxwell Anderson, S. N. Behrman and Clifford Odets enjoy some vogue for their abandonment of mere didacticism in favour of the dramatic quality of classical English D.

For the D. of the films and broadcasting, see CINEMATOGRAPH and RADIO DRAMA. See also COMÉDIE-FRANÇAISE; COSTUME DESIGN, THEATRICAL; THEATRE; CENSORSHIP OF THE DRAMA; ENGLISH LITERATURE; COMMEDIA DELL'ARTE. See E. E. Viollot-le-Duc, *Ancien Théâtre français*, 1854-57; J. L. Klein, *Geschichte des Dramas*, 1865-78; W. C. Hazlitt, *The English Drama, 1543-1664*, 1869; A. W. Ward, *History of English Dramatic Literature to the Death of Queen Anne*, 1899; W. L. Courtney, *The Idea of Tragedy in Ancient and Modern Drama*, 1900; E. K. Chambers, *The Medieval Stage*, 1903; L. N. Chase, *The English Heroic Play*, 1905; F. E. Schelling, *The English Drama*, 1914; A. Dukes, *Modern Dramatists*, 1911, and *Drama*, 1928; W. Ridgeway, *The Drama and Dramatic Dances of Non-European Races*, 1915; A. H. Quinn, *A History of the American Drama*, 1923; M. Rudwin, *A Historical and Bibliographical Survey of the German Religious Drama*, 1924; A. W. Pickard-Cambridge, *Dithyramb, Tragedy and Comedy*, 1927; B. H. Clark, *A Study of Modern Drama*, 1928; N. Young, *The Drama of the Medieval Church*, 1933; M. Bieber, *The History of the Greek and Roman Theatre*, 1939; J. W. Krutch, *The American Drama since 1918*, 1939; H. H. Hatcher, *Modern British Dramas*, 1941; A. van Gyseghem, *Theatre in Soviet Russia*, 1943; H. Ould, *The Art of the Play*, 1948.